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It Takes a Village:
Placing Middle Rocky Mountain high altitude residential sites of the Late Prehistoric
Firehole Phase into a broader regional context.

By
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for the degree of

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in Anthropology, Cultural Heritage

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Major
Anthropology

It Takes a Village:

Placing Middle Rocky Mountain high altitude residential sites of the Late Prehistoric Firehole Phase into a broader regional context

Chairperson: Anna Marie Prentiss

Abstract:

This dissertation presents three separate articles in different stages of peer-review all focused on late Late Prehistoric (AD 1300 to contact) residential occupations, in the Wind River Range and Shirley Basin of Wyoming. These articles cover survey results in the Wind River Range of Wyoming, Shoshone ethnic interpretations associated with Late Prehistoric artifact assemblages, and a lithic analysis from the excavated interior of domestic structure at an alpine and basin location of the Firehole Phase. These articles broaden the research agenda of high-altitude sites to downplay the role of ethnicity and include adjacent sites of the Wyoming Basin. In focusing research on multiple sites across diverse ecosystems specific of the Firehole Phase it enables macroevolutionary studies of mid-latitude hunter-gathering groups to advance.

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CHAPTER 1

INTRODUCTION

This Ph.D. dissertation focuses on the Firehole phase (post 700 cal BP; often associated with the Shoshone) occupations of the Middle Rocky Mountain and Wyoming Basin physiographic provinces. The dissertation is comprised of three articles that are either published or in the process of submission for publication in peer-reviewed journals or edited books that include: *Plains Anthropologist: Papers in Honor of James Benedict* edited by Judson Finley and Ken Cannon, *Ethnohistory*, and *Ethnography of the American West*. Edited by Robert Brunswig. University Press of Colorado, Boulder, and *Lithic Technology* or *the Journal of Field Archaeology*. The three articles are submitted as an alternative to a single topic dissertation in accordance with University of Montana Graduate School and Anthropology Department guidelines.

The research presented in this dissertation focuses on the Middle Rocky Mountains. It is broken into three separate articles with the aforementioned physiographic province and Late Prehistoric period as the unifying principles: 1) the first article covers the history of research in the Middle Rocky Mountains and presents new survey results from four separate drainages in the Wind River Range. The majority of the cultural material found during these surveys in Wind River Range dates to the Late Prehistoric time period; 2) The second article deals with the associations of ethnic identity within a particular suite of diagnostic Late Prehistoric cultural material found in both the Middle Rocky Mountains and adjacent basins; and 3) The final article tests the perceived similarities in settlement and lithic procurement patterns at one high altitude site and one lower elevation site. This is done by using the excavated materials from a

residential structure in the Wind River Range as well as those from a similar residential site found on the eastern edge of the Wyoming Basin.

My own journey into this research and degree began with an invitation to metal detect the High Rise Village site, a Late Prehistoric residential camp at 3200 masl in the Wind River Range of Wyoming, in the summer of 2007 after my undergraduate degree. Not knowing then that high-altitude research would become a *competitive* and viable research field within archaeology I went for the scenery, comradery, and experience outside of the humdrum of my contract archaeology job. This original trip blossomed into years of excavation and survey work throughout the Wind River and Absaroka Ranges of Wyoming. Each day was filled with new discoveries and great conversations that created an infectious intellectual curiosity. There was not an evening when we did not discuss our daily-finds and share literary moments over a campfire and great meals. Those days in the mountains of Wyoming cemented an insatiable curiosity that led to my continued education and this dissertation.

The broad theme and major focus of this dissertation comes from the similarity in residential sites and material culture that many researchers suggest marks the presence of the Shoshone in the region (Adams 2010; Scheiber and Finley 2011). Despite the obvious resemblances in Late Prehistoric “Shoshonean” assemblages few studies have explicitly tested artifact or associated settlement patterns to suggest how these similarities play out on a landscape scale, if at all. Rather than assume similarities in the “Shoshonean” assemblage covered in part of this dissertation are the result of a shared ethnicity, a portion of this research uses lithic material found within occupational structures from different residential sites to formally test these assumptions (e.g. lithic land-use patterns).

Proponents of a single ethnic identity argue a related cultural group utilized dissimilar ecotonal locations during different seasons with similar learned logic. This is often done on the basis of similarities in chipped stone and ceramic assemblages, but can include certain lithic material types, and residential feature construction (Adams 2010). Examples include: obsidian conveyance studies that argue Late Prehistoric Shoshonean groups used a diversity of Rocky Mountain obsidian sources that became more regionalized by European Contact (Scheiber and Finley 2011). Similarly, the distribution of soapstone vessels is argued to align with the recorded 1825 boundary of the Eastern Shoshone (Adams 2006). Whether the similarities are diagnostic of an ethnic group in the region is an issue that will rage for decades and is not solved here. The direction this dissertation takes is partially testing Late Prehistoric land-use patterns and in particular the relationship of montane environments and basin environments during this period.

Metcalf and MacDonald (2002:185) suggest that during the Late Prehistoric period of the Wyoming Basin mobile foraging groups primarily occupied upland wooded areas and wet drainages. These results are specific to the Wyoming Basin and do not incorporate recent findings from alpine environments. Due to the amount of new Late Prehistoric data coming from the alpine, portions of this dissertation focus on the relationship between alpine and basin residential sites. To do this the partially excavated interiors of a domestic structure from two Late Prehistoric residential locations are the focus of this analysis (Lodge MA-2 at the Shirley Basin Lodge site and Lodge CC at the High Rise Village site).

There is the possibility that each residential site may represent a seasonally specific location used as part of a larger transhumance system. However, seasonally sensitive materials like faunal are very limited and poorly preserved at the High Rise Village and unreliable provenience and a sampling bias by early excavations at the Shirley Basin Lodge site leave such

analyses impractical at this time. At this time the only comparable data between these two locations is restricted to lithic debitage and tools. Such analyses provide procurement and conveyance data that are lacking from Middle Rocky Mountain and Wyoming Basin sites and are a first step in understanding the relationship between each location.

Study Location.

Hunter-gatherer settlement and mobility studies often include large physiographic regions, this research is no different. The combined papers focus on prehistoric residential sites situated within two larger physiographic provinces representing both montane and basin environments. The High Rise Village is a high-altitude, montane site located in the east-central portion of the Wind River Range, at an elevation of 3200 masl. The Wind River Range is situated within the Great Yellowstone Ecosystem, a diverse series of ecosystems that overlap as the cumulative range of the grizzly bear (*Ursus arctos*) (Hansen et al. 2002:152; McIntyre and Ellis 2011). The area covers some 19 million acres in what is now northwestern Wyoming, southwestern Montana, and eastern Idaho centered on Yellowstone National Park (Primm and Clark 1996). This ecosystem is within the larger geographic province known as the Central or Middle Rocky Mountains (I prefer the Middle Rocky Mountains for its consistency with easily accessible maps):

http://www.nature.nps.gov/geology/education/concepts/concepts_regional_geology.cfm).

The Middle Rocky Mountains include all of the Yellowstone Plateau and Bighorn Basin as well as the Bighorn, Wyoming, Absaroka, Bear Tooth, Owl Creek, Teton, Wind River, eastern Wasatch and Uinta mountain ranges. This area encompasses the Greater Yellowstone Ecosystem, large adjacent mountain chains and abuts the Wyoming Basin to the east. The

Wyoming Basin includes the Great Divide, Washakie, and Hanna Basins as well as the Granite Mountain ranges truncating at the western foothills of the Laramie Range.

Site Background

The sites proposed for analysis contain numerous residential features and because of this have been defined as prehistoric villages. This idea may skew the interpretation so a review of the *village* concept and its application is needed. Callmer (1991:337) defines *villages* as the “the amalgamation of a settlement of more than one household not belonging to the same kin group.” Morgan et al. (2012:53) define *village settlements* as “five economically interdependent families living close together in residential structures either permanently or on a semi-sedentary basis.” This residential configuration is commonly associated with agricultural groups (Bandy and Fox 2010) but it is not a prerequisite (Gilman 2010, 1987; Rick 2007). A variety of cultural and subsistence processes can lead to the creation and maintenance of village settlements (Gibson 2001). Hunter-gatherer examples include the social stratification and subsistence intensification attributed to the rise of large village systems in the Pacific Northwest (Ames 1991; Sassaman 2004). A similar formation process is suggested for the mound builders of Poverty Point in the American Bottomlands (Gibson 2001). In these contexts subsistence is not the only factor in the formation of village settlements (Kelly 1992:49). The archaeological record indicates a change in house size, storage, and mobility patterns associated with human groups that lived in villages (Eerkens 2003; Kelly 1992). The Shirley Basin Lodge site and the High Rise Village have features that match the archaeological signature typical of other *village* sites. But currently there are not enough dates from domestic features to address contemporaneity of use across the site. Until this issue is resolved the term *residential occupation* is used in lieu of *village* for these

sites. At best the current data indicate these residential occupations fall firmly in the period defined as the Firehole Phase of the Late Prehistoric period on the Middle Rocky Mountains (Thompson and Pastor 1995).

High Rise Village Site.

The High Rise Village site has seen extensive excavation and these initial results appear in a Master's thesis (Koenig 2010), a Ph.D. dissertation (Adams 2010) and subsequent journal articles (Morgan et al. 2012; Morgan et al. 2014). The work at the High Rise Village has focused on methods pertaining to residential feature designation (Koenig 2010) climatic sequencing (Morgan et al. 2012), and historical population use (Adams 2010). The amount of ongoing work ensures the site will be one of the better studied high-altitude locations in the Middle Rocky Mountains. The site was original thought to be a high-altitude village that contains approximately 60 domestic features ranging from simple circular cleared out areas to formally coursed retaining walls. Adams (2010) describes all of these structures as "cut-and fill." This refers to the foundation of the structures that was first cut into a slope (average 23 degrees) and then the loose dirt was leveled to create a pad. Most of the dry-masonry architecture in these structures describes a retaining wall built to create a leveled downslope platform. The radiocarbon materials associated with these structures suggest old dates but the artifacts are consistent with Late Prehistoric materials. The materials included and considered in this analysis are consistent with a typical Firehole Phase Late Prehistoric assemblage (Thompson and Pastor 1995). Comparative to the High Rise Village site the Shirley Basin Lodge site has received little research attention, primarily because of its location in a lower elevation, and years of professional and avocational neglect.

Shirley Basin Lodge Site

In the 1960s, an artifact enthusiast alerted Wyoming State Archaeologist, Dr. George C. Frison, of the existence of a site with several coursed, rock-walled structures. Many of the structures at this site contained within them large quantities of artifacts and because of this it was actively targeted by collectors. George Frison first test excavated the site in 1968, and returned later with a volunteer group. The Wyoming Archaeological Society (WAS) got involved, and over a Fourth of July weekend in 1969, Frison and WAS members from several WAS chapters excavated 17 of 21 structures thought to comprise the total site area. Several years later, one of Frison's graduate students, George Zeimens completed his Master's thesis on the site (1975).

During its short period of popularity in the late 1960s and 70s, the Shirley Basin Site was tested, excavated, partially analyzed, and reported on, but never formally researched (Steege 1969, Zeimens 1975, 1981). Avocational archaeologist Lou Steege (1969) initially published a short description of the July 4th 1969 excavations, in which he characterizes several distinct occupations within each structure (multiple living floors per structure). Years later Zeimens' thesis (1975) describes the artifacts and site in more detail but does not address the occupational use of each feature or provide spatial data (i.e. map). This first map of the site was not made available until 1981 when it was published in the 11th annual proceeding of the Chacmool Conference. To date there has never been an in-depth analysis of the artifacts collected during the 1968/69 (and unknown/unreported work in the 70s) excavations. It was not until 42 years after the original excavation that the materials were inventoried and curated (over 48,000 artifacts) so an analysis could even been undertaken (Schroeder 2010). There are two reasons why the artifacts and the larger site area have received so little research attention: (1) No vertical and very limited

horizontal spatial data exist from the original excavation. (2) The artifacts were stored in such a poor state that these already limited data were further compromised.

Both issues have kept researchers away from the Shirley Basin Lodge site (Larry Todd, personal communication 2012; Robert Kelly, personal communication 2013) because the high artifact counts led most to believe the site was completely excavated, and more importantly, useless because of poor/altered spatial data. This was obvious for the lithic assemblage from the site but less so for the cataloged bone that had labels specific to feature number (#1-21) (Schroeder 2010a). It was assumed a faunal analysis of the only available artifacts with associated provenience data would offer a much needed insight into seasonality and prey choice. I conducted this analysis in the spring of 2014 at the University of Wyoming and while there were no indicators of seasonality interesting patterns did emerge. House Site #7 for example contained almost all of the non-fractured elements of the appendicular and axial skeleton for two mature bison. However, these patterns were determined to suffer from a heavy collection bias when a small sample (18.5 liters) of 1969 back dirt was rescreened in 2014 and contained 976 burned and unburned bone fragments. In identifying both a heavy collection bias and no seasonally sensitive faunal materials the most recent excavation work sought to date and reevaluate the condition of the Shirley Basin Lodge site.

Schroeder and Adams (2014) conducted limited test excavation and residential feature evaluation as part of the 2012 Colorado State University field-school at the Shirley Basin Lodge site. This work identified all of the 1969 excavated structures in addition to seventy-nine residential features never recorded or excavated during the 1960s work. The site occupation was estimated to date between AD 1500 -1750 (Zeimens 1975:74, 1981:114), but there were no associated radiocarbon dates from this early work (Steege 1969; Zeimens 1975, 1981). The 2012

excavation was able to obtain a single uncalibrated radiocarbon date of 270 +/- 30 BP (Beta. 329874) from an isolated fire hearth outside of the main concentration of domestic structures (Schroeder and Adams 2014). A 2014 excavation of domestic features provided the first reliable radiocarbon dates from the interior space and this enabled a more comparative study with High Rise Village site to proceed with more confidence. The close overlap in radiocarbon dates between domestic features at each site provides a solid base to test whether each location was occupied and used by multiple or single ethnic groups.

Beyond Ethnicity

The early research of William Mulloy (1958) and later George C. Frison had a lasting effect on interpretation of the material record of the Northwestern Plains. Both archaeologists had long careers that include contributions to all periods of prehistory but it is their work on the late prehistoric in the region that is reviewed in this paper. Frison (1967) focused his Ph.D. dissertation on locating Crow encampments near his childhood home in the Bighorns of northern Wyoming. Using historical records and a recently revised chronology he identified artifacts, namely pottery, presumed to belong to Crow groups. Mulloy (1958) had similarly designated pottery as Intermountain Ware which he associated with Shoshone groups that had migrated from Great Basin. The discovery of pottery within areas of historical recorded indigenous territory linked them with these objects. Later, those materials spatially associated with the pottery were further designated as ethnic markers. These trends remained as late prehistoric research stagnated and Paleoindian research burgeoned in the region. This approach, which has parallels with the direct historical approach, was taught through my undergraduate classes (Larson and Kornfeld 1994). Currently the link of historical groups with archaeological

materials is still a prevalent trend in research but is blended with environmental and ecological approaches.

Late Prehistoric research on the Northwestern Plains (Middle Rocky Mountains) has become more complex in the recent years but at its core it is still associated with some aspects of the Numic Spread or establishing the presence of the Wind River Shoshone/Eastern Shoshone. Inherent to most Late Prehistoric research on the Northwestern Plains and now Middle Rocky Mountain region is the core assumption that 1.) certain materials represent a bounded group (e.g. the Shoshone) 2.) and by extension of this argument these same materials must reflect culturally specific learned behavior manifest in the technology if they are ethically sensitive (cf. Scheiber and Finley 2010; 2011).

RESEARCH TRENDS AND CONTRIBUTIONS

The three articles are focused broadly on prehistory of the Middle Rocky Mountains and associated Wyoming Basin and more specifically on Late Prehistoric - Firehole Phase. The first article places the results of five years of survey and excavation work in the northern Wind River Range into a larger interpretative context from similar data in the Wyoming Basin. The alpine results suggest varying degrees of interaction between humans and mountains in the Middle Rocky Mountains from Folsom to European contact. These preliminary results are restricted mostly to surface surveys but will become more robust as research in the Middle Rocky Mountains continues to progress and include additional data. This article focuses a discussion of these surface findings on the similarities of diagnostic materials belonging to the Late Prehistoric Firehole Phase in both the Middle Rocky Mountains and Wyoming Basin and offers avenues for future studies specific to this period. Overall, the goal of the first chapter is to place current

Middle Rocky Mountain research into interpretive contexts provided by years of research from the adjacent Wyoming Basin. This is as Frison said (2004:2) “ ... to see the plains and the mountains not as two separate ecosystems but as a continuum, ... the two ecosystems were inseparable”.

The second chapter (article number two) deals with ethnic interpretations from a suite of artifacts thought to be diagnostic of Shoshone groups (i.e. Numic speaking) in the Middle Rocky Mountains. This chapter outlines different approaches used in both current and historic interpretations of ethnic maintenance, construction, and identity recognition. The Binford-Bordes debate is used to illustrate opposite positions ethnic interpretations in archaeology the debate frames each view nicely. This helps situate a larger discussion on the complexities of maintenance and construction of ethnic identity in living groups. The purpose is to review the use of ethnicity specific to the Shoshone in the Middle Rocky Mountains. The complexities of ethnic identity in living groups and a review of the often cited historical accounts are covered to question if it is appropriate to advance the association of artifactual material and living groups. This if not to deny commonality in the artifacts and associated dates found throughout much of the Middle Rocky Mountains but rather suggest the burden of proof that is required to associate these materials with a specific group has not been met. The addition of broad-scale analyses like macro-evolutionary would begin to test the inherited logic displayed in artifacts in this debate and is the direction argued for future research in the conclusion.

The fourth chapter (article three) tests the link between sites associated with materials described in the previous chapter. Specifically, lithic procurement and conveyance strategies associated with Firehole Phase residential sites. A Minimum Analytical Nodule Analysis (MANA) analysis on lithic artifacts from the interior of a single domestic structure in the

Wyoming Basin and the Wind River Range provides these data. The results suggest groups actively planned and geared-up for task-specific activities represented by domestic structures in both environments but more so for the alpine environment. These results are specific to a single structure from each so it is difficult to draw large intersite comparisons. However, they are consistent with a broad and stable land use patterns of Firehole Phase age that incorporated both alpine and basin resources.

As research progresses in the alpine it is important to focus on adjacent regions but also local physiographic provinces. This is combined theme of the three chapters of this dissertation; focus research on a broad region during the Firehole Phase. This is an early effort to explicitly test the assumed similarity between late prehistoric residential sites in the Middle Rocky Mountains. On a larger-scale this work begins a more nuanced approach to understanding human migrations patterns in the archaeological record (cf. Bettinger and Baumhoff 1982). In the future such analyses, considered with the DNA evidence, and macroevolutionary models will track cultural change across the Great Basin. This research is a step towards better understanding how technology and people moved in the prehistoric world of the Middle Rocky Mountains. Future studies can focus on if the movement was a response to climatic change, demographic conditions, an ethnic migration, or other unknown factors.

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CHAPTER 2
BARRIER OR BACKBONE?
MIDDLE ROCKY MOUNTAIN RESEARCH
FROM A NORTHERN WIND RIVER RANGE PERSPECTIVE

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ABSTRACT

Over the last decade our survey work in the alpine and subalpine zone of the northern Wind River Range has covered 5100 acres and identified over 76 archaeological sites. Complementary to findings from the adjacent Absaroka Mountains these survey results indicate use from Paleo-Indian through to the Contact Periods. In conjunction with previous northern Wind River Range alpine research on locations with domestic features these new findings indicate a protracted and differential use of alpine and subalpine environments. Our findings provide further evidence of the exploitation of mountain specific resources. These data are particularly robust when viewed in the context of adaptive shifts proposed for the adjacent Wyoming Basin.

Keywords: Middle Rocky Mountains, Steatite, Alpine residential site, Wind River Range, Wyoming Basin

INTRODUCTION

In the late summer of 2005 Richard Adams, Tory Taylor, and a volunteer crew found an isolated metate on a south facing slope in the Torrey Creek drainage of the northern Wind River Range. It was the first discovery on the prehistoric residential site now known as High Rise Village (HRV henceforth) (Adams 2010; Koenig 2010; Losey 2013; Morgan et al. 2012; Stirn 2014). This original team returned to the mountains in four subsequent field seasons. The result of five summers of survey and excavation work were used to explore the cultural history and subsistence decisions argued to have resulted in the site's formation (Adams 2010), and used to confirm the presence of above ground architecture, in burn areas, on terraced pads then only assumed to be lodge features (Koenig 2010). Following research by a new crew dated additional structures beyond the late Late Prehistoric occupations studied by Koenig (2010) and Adams (2010).

Recent research burgeoned at HRV focused on refinement of radiocarbon assays, detailed a local climatic record to better model foraging behavior, and dated the deadfall trees in tundra above the site location (Morgan et al. 2012; Losey 2013). Nearly a decade of focused research at this one residential alpine site in the Wind River Range have advanced our collective knowledge of hunter-gatherer adaptations and cultural history in Middle Rocky Mountains (Adams 2010; Losey 2013; Morgan et al. 2012). But it is important to recognize HRV is only one location. Seemingly similar alpine residential locations do exist in the northern Wind River Range (Adams 2010; Stirn 2014), as well as the adjacent Absaroka Range (Eakin 2005; Finley and Finley 2004; Scheiber and Finley 2010a, 2011) and possibly as far away as the California/Nevada border in the White Mountains (Grayson 1991; 2011; Bettinger 1991), Toquima (Grayson 2011; Thomas 1994, 2014) and Toiyabe Ranges (Hildebrandt 2013). Inter-

regional similarities in artifacts and residential patterns have led researchers to a strong reliance on the culture area concept for the accepted explanation of human occupation in the Middle Rocky Mountains (Morgan et al. 2012:65).

The Middle Rocky Mountains include all of the Yellowstone Plateau and Bighorn Basin as well as the Bighorn, Wyoming, Absaroka, Bear Tooth, Owl Creek, Teton, Wind River, eastern Wasatch and Uinta mountain ranges (National Park Service 2015). This area encompasses the Greater Yellowstone Ecosystem, the large adjacent mountain chains, and abuts the Wyoming Basin to the east. The Wyoming Basin includes the Great Divide, Washakie, and Hanna Basins as well as the Granite Mountain ranges truncating at the western foothills of the Laramie Range (National Park Service 2015). The Middle Rocky Mountains have at times been both the backbone and barrier to Great Basin and Great Plains culture areas (Kornfeld et al. 2010:27-31). Research trends reflect these influences varying from a focus on normative description (i.e. cultural history) to ecological and environmentally determined models of hunter-gatherer adaptations (Adams 2010; Losey 2013; Morgan et al. 2012). To understand research in the Middle Rocky Mountains the history of these trends is important. Other contributors to this volume have detailed varied pieces of this historical research as it pertains to residential mobility and altithermal climate change (Bender, this volume), physiological influences of altitude (Kornfeld, this volume), and modern climate change (Todd, this volume). This review overlaps some of the same literature but focuses on three distinct research trends: first, Middle Rocky Mountain chronology/typology and the influence from the Northwestern Plains/Wyoming Basin, next, upland/lowland models of residential mobility, and finally specific lithic resources/artifact classes. This review is not meant to be exhaustive but illustrative of the range of research previously conducted in the Middle Rocky Mountains.

RESEARCH OVERVIEW FOR THE MIDDLE ROCKY MOUNTAINS

It is well established that the Middle Rocky Mountains represent the boundary of two major cultural areas; the Great Plains to the east and the Great Basin to the west (Kroeber 1963 [1939]; Wissler 1923; Morgan et al. 2012). Inter-regional similarities in artifacts and residential patterns of the Middle Rocky Mountains with two adjacent cultural areas has led to Consensus-free reliance on disparate typological and chronological schemes (Kornfeld et al. 2010:65; Sanders 2001). The lack of chronological agreement has had an undeniable influence on the interpretation of archaeological materials with aspects from both cultural areas evident in the cultural-historical reconstructions of the Middle Rocky Mountains. From the Great Basin an early and arguably small influence for typologies/chronologies is broadly evident in the “Desert Culture” hypothesis and more specifically in the cultural core concept which expanded from the heart of the Great Basin culture area east to Birdsheed Cave in the Owl Creek Mountains of Wyoming (Bliss 1950; Husted and Mallory 2002; Jennings 1957; Jennings and Norbeck 1955). The Desert Culture was argued to represent a wide-ranging adaptation to arid environments, “that were broadly similar although stylistically recognizable from region to region” (Upham 1994:120). The similarity came out of the culture core concept that suggested little change in the material culture from the deep past to the historically contacted Shoshone (Rhode et al. 2005). This concept is now discredited but, it focused cultural change research in the Great Basin at least on either environmental or historical explanations (Morgan and Bettinger 2012:187). Conversely, as William Mulloy developed the first broad chronology for much of the Montana/Wyoming area, that includes the Middle Rocky Mountains, he borrowed more from the Great Plains and not the Great Basin culture area.

William Mulloy's (1958) proposed chronology was based on the stratigraphic seriation of points largely associated with Great Plains chronologies (Kornfeld et al. 2010; Reeves 1973). In Mulloy's original chronology, the first influence from the Great Basin is not proposed until the beginning of the Late Middle Prehistoric period, roughly 1950 BP, where he said, "... the possibility that the gathering orientation of this period in the Wyoming Basin represents an influx of people from the Great Basin who retained a gathering economy previously established, even though game was present, should not be overlooked" (Mulloy 1958:210). In large part this early chronology did distinguish temporal ordering from cultural interpretations basing chronological units on site names rather than any defined phase or traditions (Mulloy 1958:7). The exception came from descriptions of pottery found in both Ghost and Pictograph Caves diagnosed living Crow and Shoshone groups. This admittedly cursory view of Mulloy's work hints at broader interpretive trends prevalent in the Middle Rocky Mountains (namely research in the modern states of Wyoming and Montana). Preceding Mulloy's groundwork, interpretations relied heavily on the Great Plains culture area for typology names for the Middle Rocky Mountains (Frison 1978). This emphasis was despite Wil Husted's contention that these areas were not part of the Great Plains culture area, an issue that he raised at numerous conference lectures and publications (1992, 1993, 1999, 2001). Mulloy's early association of the Shoshone with the youngest archaeological materials became a long-standing culture-history issue (an issue dealt with at the end of this paper) in the research of the Middle Rocky Mountains.

Husted and Mallory's Western Macrotradition model was an early broad synthesis of much of the prehistory of the Rocky Mountains and adjacent regions (Husted 1968; Husted and Edgar 2002; Mallory 1968). The appearance of Agate Basin complex was argued to signal a second migration of peoples to North American from Asia around 10,000 BP (Husted 1968).

According to the argument, after this initial migration a split occurred at the onset of the altithermal with one division, the Plains Branch following bison herds onto the Canadian Plains while the other group remained more mountain oriented. The Mountain Branch as it became known, developed the Humboldt, Pinto, and McKean style projectile points and this branch was argued to represent the ancestors of Uto-Aztecan groups. Alternatively, Kevin Black (1991) proposed a mountain tradition that extended from southern Montana to Northern New Mexico. Black's (1991) Mountain Tradition covers the same time span as the Western Macrotradition, roughly 9,000 BP to 700 BP, but these traditions diverge on several key points: First, Black (1991) relying on the work of Frison and Stanford (1982), disagrees that the Agate Basin complex represents a new migration into the Rocky Mountains. Secondly, the older dates of Pinto-styled projectile points in the Great Basin suggest that McKean could not be its antecedent and thus not part of a post-Altithermal movement out of the Rocky Mountains (Black 1991:3). Both the Western Macrotradition and Mountain Tradition models did however argue that human groups developed a mountain focused adaptation that differentiated from those used by low-land oriented groups and there was a real history to this cultural adaptation.

These two models outline regional differences in the research focus of the Rocky Mountains each is associated. The Mountain Branch and the possible *in situ* development of the Uto-Aztecs in the Middle Rocky Mountains directed a large focus on the cultural-history of the Shoshone (Husted 2001; Larson and Kornfeld 1994). Whereas models like the Mountain Tradition, and earlier research of the southern Rocky Mountains in general, focused on broader land-use patterns (See Bender this Volume for a thorough review). The work of Bender and Wright (1988) in the Tetons was among the first Middle Rocky Mountains interpretations that assumed mountains were part of broad-spectrum subsistence and settlement strategy.

Bender and Wright's (1988) model suggested that seasonally available resources are mountain specific and that prehistoric groups would utilize these resources at appropriate times. The classification scheme for the broad-spectrum model included: base camp, secondary base camp, and special-use sites. The expectation was for large residential sites with diverse tool assemblages to have smaller adjacent task-specific camps (Bender and Wright 1988). The model received criticism because site classification was based on total size (ft²) and did not deal with reoccupation or diachronic landuse patterns (i.e. large artifact scatters become base camps based on total area alone) (Cannon et al. 2004). Furthermore it suggested seasonally available plant resources are the primary drivers for human aggregation, at least, in the northern Tetons. Plant communities shift as a result of time, over-use, and climate and these variables then condition the total site area; a camp focused on a single use plant-procurement appears much smaller than a similarly used lithic procurement location (Cannon et al. 2004:121). These early models and critiques place an importance on mountain specific floral and faunal resources while other work has demonstrated the importance of Middle Rocky Mountain lithic materials.

George Frison's early work on steatite artifacts suggested the primary sources were in the mountains and this brought groups from the lowlands to exploit the lithic resource (1982:275). Frison (1982) noted artifacts manufactured from steatite, particularly bowls, found in basin interiors; this presence of mountain resources in lowland settings suggests prehistoric groups utilized both environments. Steatite bowls are an assumed ethnic horizon marker of Shoshone groups first because of historical accounts but also because of morphological similarities between these soapstone bowls and ceramic containers also assumed to be of Shoshone origin (Adams 2006, 2010; Frison 1971; 1978; 1982). Early researchers like Marceau (1982) questioned this link suggesting an ethnic divide between groups that utilized mountain specific

steatite and lowland ceramic containers. This split has since been refuted but broadened future soapstone research to both upland and lowland environments.

Richard Adams (1992, 2006, 2010) has contextualized the soapstone bowl industry of the Middle Rocky Mountains focused on locating sources and dating the emergence of the technology. As of 2006, 144 soapstone bowls found within the Greater Yellowstone Ecosystem (GYE) and surrounding basins. The majority of soapstone vessels recovered in the GYE occur above 2450 masl with twice as many bowls occurring in mountain environments than predicted by chance alone (Adams 2006:537). The locations of unfinished bowls correspond to primary sources, whereas finished bowls travel out of the mountains into basins averaging 90 km from primary sources. It is argued that finished bowls correspond to the limits of historic Shoshone tribal territory in both the mountains and the plains. The temporal depth of this bowl industry, and soapstone extraction from alpine environments in general, are still open for inquiry. The low frequencies of steatite artifacts across time increase closer to the Late Prehistoric, suggesting a late increase in the use of the alpine. This and other diachronic analyses of the alpine Middle Rocky Mountains may be answerable when in conjunction with research in adjacent lowland settings like the Wyoming Basin.

Middle Rocky Mountain Chronologies

Over years of sustained cultural resource management, the chronology used on the Great Plains/Northwestern Plains did not align with dates and materials in the Wyoming Basin. Metcalf (1987) proposed the first chronology specific to the Wyoming Basin and this early attempt has seen latter revisions (Thompson and Pastor 1995:20). In general this revised iteration of this chronology delineates six major post-paleo time-periods (Thompson and Pastor 1995):

The Great Divide Phase: 8500 BP – 6500 BP.
Opal Phase Phase: 6500 BP – 4300 BP.
Pine Spring Phase: 4300 BP – 2800 BP.
Deadman Wash: 2800 – 1800 BP.
Uinta Phase: ~1800 – 650 BP.
Firehole Phase: 650 – 250 BP.

In general, each phase is marked by a change in projectile point morphology but also changes in domestic features, and other formal tools. The Great Divide Phase is signaled by the presence of side-notched projectile points and a florescence in groundstone usage (Thompson and Pastor 1995). These changes are argued to represent a transition towards a more broad base subsistence than the preceding Paleo-indian period. The Opal Phase is distinguished from the preceding period primarily with the appearance of semi-subterranean housepits concomitant with slab-lined features (Thompson and Pastor 1995). The Pine Spring Phase is poorly defined, but characterized by split-stemmed and medium sized corner-notched projectile points similar to those found on the Northwestern Plains and Great Basin. A depopulation of the Wyoming Basin is thought to coincide by a reduction in both the presence of smaller corner-notched projectile points and radiocarbon dates marks the Deadman Wash Phase. Several significant changes usher in the Uinta Phase, including a dramatic spike in radiocarbon dates associated with a florescence in pithouse use, heavier use of seeds, and introduction of Rose Springs (Rosegate) style projectile points (Thompson and Pastor 1995). The Firehole Phase seems to coincide with a reduction in radiocarbon frequencies and the appearance of smaller tri-notch and side-notched style projectile points.

Metcalf and McDonald (2012:185) have outlined several major adaptive shifts that occur within the cultural chronology outlined by Thompson and Pastor for the Wyoming Basin (1995):

- 1.) Mobile big-game hunters (13,800 – 11,400 cal BP)
- 2.) Mixed-based foragers (11,400 – 8,900 cal BP)
- 3.) Central-place foragers (8,900 – 5,700 cal BP)

- 4.) Food-processor foragers (5,700 – 2550 cal BP)
- 5.) Mobile foragers. (2550 – 0 Cal BP)

Metcalf and McDonald (2012) argue in part because of climatic fluctuations “Great Basin influence is evident in the Rocky Mountains by about 11,400 cal BP” seen in both projectile point styles and a similar mountain/basin foraging system (Madsen 2002:392; Metcalf and McDonald 2012:183). In the Wyoming Basin, a shift towards larger basin houses, pit structures for food processing/storage, ground stone, and a local and fixed use of the landscape coupled with an increase in projectile point variability began 8000 cal BP and regularly occurred by 6800 cal BP (Metcalf and McDonald 2012). After 6800 cal BP through 5400 cal BP there seems to be a mix of mobile and central place foraging with an overall reduction in house size extending through 5400 cal BP. Post 5750 BP, armed with a distinct projectile point style and a more mobile residential pattern, the McKean complex of the Northwestern Plains seems to have exerted influence on the periphery of the Great Basin. By roughly 1950 BP, subsequent this incursion from the Northwestern Plains, is a period of resource intensification followed by a shift towards the bow and arrow as well as the possible influx of materials from Fremont groups (Metcalf and McDonald 2012). Post 1950 cal BP there is a noted increase in radiocarbon dates accompanied by foraging and residential patterns similar to those described around 6800 cal BP. The spike in radiocarbon dates crashes around 700 cal BP and Intermountain ceramics accompanied by DSN-Series style projectile points appear roughly coeval with a noted increase in moisture (Metcalf and McDonald 2012). These outlined adaptive shifts hint at a strong influence from the Great Basin with periods of influence from Northwestern Plains. Focus on these well-described adaptive shifts provides a strong context to present our data specific to the alpine environments of the Middle Rocky Mountains focused in these well described adaptive shifts.

NORTHERN WIND RIVER FIELD SURVEY RESULTS

From roughly 2006 to 2011 we have surface surveyed approximately 5100 acres in four separate drainage systems of the northern Wind River Range (Figure 1). To date, our field analyses have been focused on the largest aggregates of prehistoric debris (i.e. sites); future surveys will transition to non-site based sampling and landscape use studies (Dunnell 1992; Dunnell and Dancey 1983; Thomas 1975). Surveys were carried out under what Madsen et al. (2000:17) defined as “directed wandering”, with general meandering between predetermined geographical points. The survey locations are all at, or above, treeline in the alpine and subalpine environment with a mean elevation of 3261 masl between the four survey areas (Table 1).

Table 1. The number of acres surveyed and the highest and lowest elevation points in each survey area.

Survey Area Name	Acres Surveyed	Highest Elevation (masl)	Lowest Elevation (masl)
Roaring Fork Drainage	1200	3520	3243
Dinwoody Drainage	1300	3291	3078
Jakey's Fork Drainage	1400	3383	3139
Torrey Creek Drainage	1200	3346	3093

The assignation of time period to diagnostic projectile points was done in accordance with chronologies presented in Frison (1991), Kornfeld et al. (2010), Husted and Edgar (2002) and haft/neck width metrics reported in Thomas (1978), Shott (1997), and Fawcett and Kornfeld (1980). In our analysis of discovered materials, diagnostic of the late prehistoric we have separated Rosegate from DSN-series style projectile points to remain consistent with Wyoming Basin chronologies (Thompson and Pastor 1995). The projectile points included in this analysis have obvious morphology, fragmentary or questionable points have been excluded from these

results. All of the four survey areas are roughly comparable in terms of total area and tallied survey results (i.e. no area has negative or overrepresented site frequencies). An admitted survey bias tends towards the Torrey Creek area because our five years of work at the HRV site allowed for sustained presence in this drainage system. The remaining three survey areas have seen only one or two short field sessions (i.e. approx. 16 days between areas), however, all things being equal the survey results (i.e. site frequency) from these areas are comparable to the Torrey Creek drainage systems.

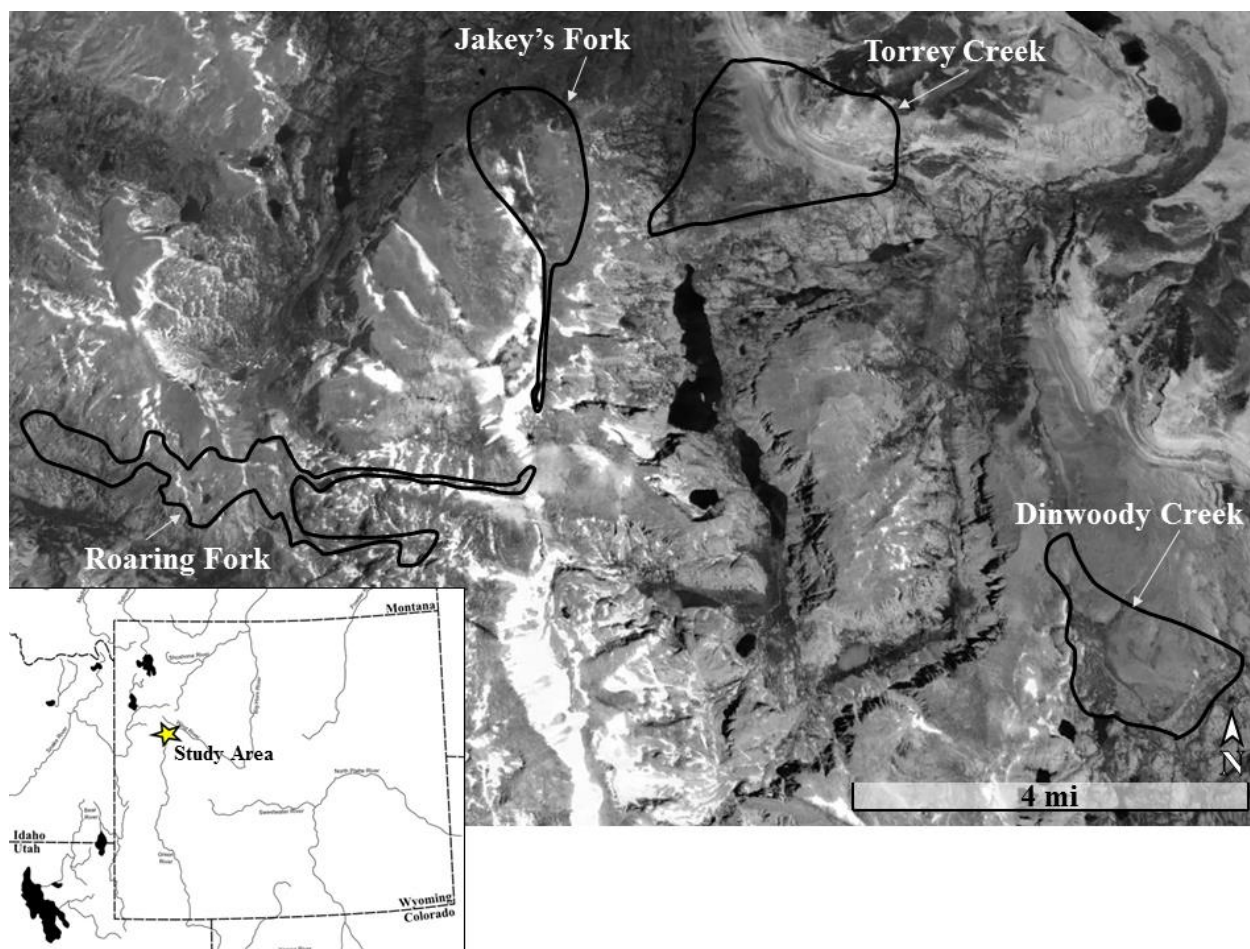


Figure 1. Google Earth landsat map of the northern Wind River Range, Wyoming survey areas.

Site Types

Over our five years of survey work in the northern Wind River Range we have identified a total of 76 archaeological sites across previously defined survey areas (Table 2). Site types range from simple lithic scatters to more complex residential sites with multiple domestic features.

Table 2. Site, feature, and artifact results from each survey area.

Site Type From Survey Locations								
Survey Area	Lithic Scatter w/ Residential Features	Lithic Scatter	Isolated Wooden Feature	Hunting Feature	Isolated Artifact Cache	Isolated Soapstone Workshop	Total	
Roaring Fork	3	25	0	0	0	5	33	
Dinwoody	2	6	1	0	0	1	10	
Jakey's Fork	1	7	0	1	0	3	12	
Torrey Creek	4	11	1	2	1	2	21	
Total	10	49	2	3	1	11	76	
Domestic Structures From Survey Locations								
Survey Area	Cut-and-Fill Lodge Pads	Crib-Logged Structures	Conical Wood Structures	Stone Circle	U-Shaped Structure	Slab-Lined Hearth	Total	
Roaring Fork	10	0	0	5	0	0	15	
Dinwoody	21	0	1	0	0	0	22	
Jakey's Fork	1	0	0	0	1	0	2	
Torrey Creek	58	3	2	0	2	1	66	
Total	90	3	3	5	3	1	105	
Diagnostic Projectile Points From Survey Locations								
Survey Area	Folsom	Late Paleo	Early Archaic	Middle Archaic	Late Archaic	Rosegate	DSN-Series	Total
Roaring Fork	0	2	0	6	17	7	4	36
Dinwoody	1	1	0	3	1	2	28	36
Jakey's Fork	0	0	0	0	1	0	1	2
Torrey Creek	0	2	4	11	7	2	2	28
Total	1	5	4	20	26	11	35	102
Soapstone Artifacts From Survey Locations								
Survey Area	Bowl Preform	Finished Bowl	Cup	Pipe Preform	Bead/Pendant	Worked Soapstone	Total	
Roaring Fork	13	0	0	1	0	9	23	
Dinwoody	0	2	1	0	1	1	5	
Jakey's Fork	15	1	2	0	1	3	22	
Torrey Creek	1	1	0	0	0	6	8	
Total	29	4	3	1	2	19	58	

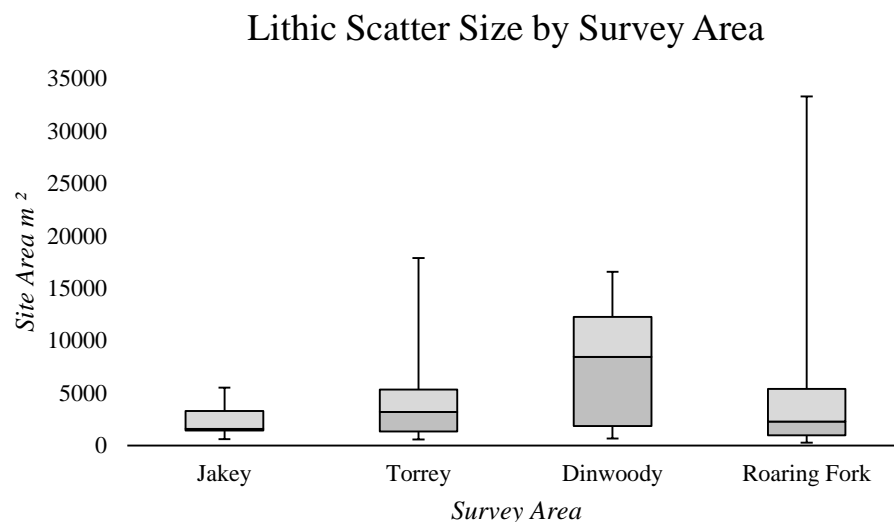
Undoubtedly, sites with domestic features present have received the most field and research attention. In each of the four survey areas at least one site with domestic features is present. Features range from simple cleared out areas to more-formal pads shored with complex multi-coursed rock walls. We've broadly categorized these feature variations as *cut-and-fill lodge pads* (Adams 2010; Losey 2013; Koenig 2010; Morgan et al. 2012). A total of 90 cut-and-fill style lodge pads were identified in nine residential sites; a tenth residential site contains features reminiscent of Plains-style stone circles (Scheiber and Finley 2010b). When/if above-ground remnants are intact or observable wooden superstructure for the pads appears in two forms: crib-log (n=3) and conical (n=3). Each superstructure has a poorly defined or loosely associated pad leaving the relationship between cover and pad form tenuous with available data. Feature distribution is weighted heavily towards the Torrey and Dinwoody drainage survey areas. HRV and Burnt Wickiup represent 87 percent of the sample from the High Rise Village and Burnt Wickiup sites. Excluding the RLM site and Veranda Village, the distribution of features within a site correlates with total site area; that is, recorded site area is defined by domestic feature distribution (with accompanied debris scatters). The two aforementioned site exceptions contain small domestic feature concentrations situated within much larger (and likely older) lithic scatters (Table 3).

Table 3. Site Locations with domestic features by elevation, number of features, and total site area.

Residential Site	Elevation (masl)	Site Size (m ²)	Domestic Features
HRV	3261	65,428	58
Mano Heaven	3208	8,112	2
RLM-Village	3139	114,066	1
RLN-Village	3149	11,222	4
Burnt Wickiup	3200	38,126	17
TFB Site	3211	12,456	3
Veranda Village	3191	42,583	6
RF-Stone Circles	3301	2,097	5
RF-Villages	3307	2,242	4
Lifesaver Site	3240	4,336	1

Lithic scatters without domestic features are the most common site types encountered across the four survey areas (Table 2). In terms of total area, lithic scatters represent both the largest (190,000 m² in Dinwoody) and smallest sites (261 m² in Roaring Fork) discovered during this reported survey work (Figure 2). However, removing the largest lithic scatter in the

Figure 2. Total area for sites without domestic features.



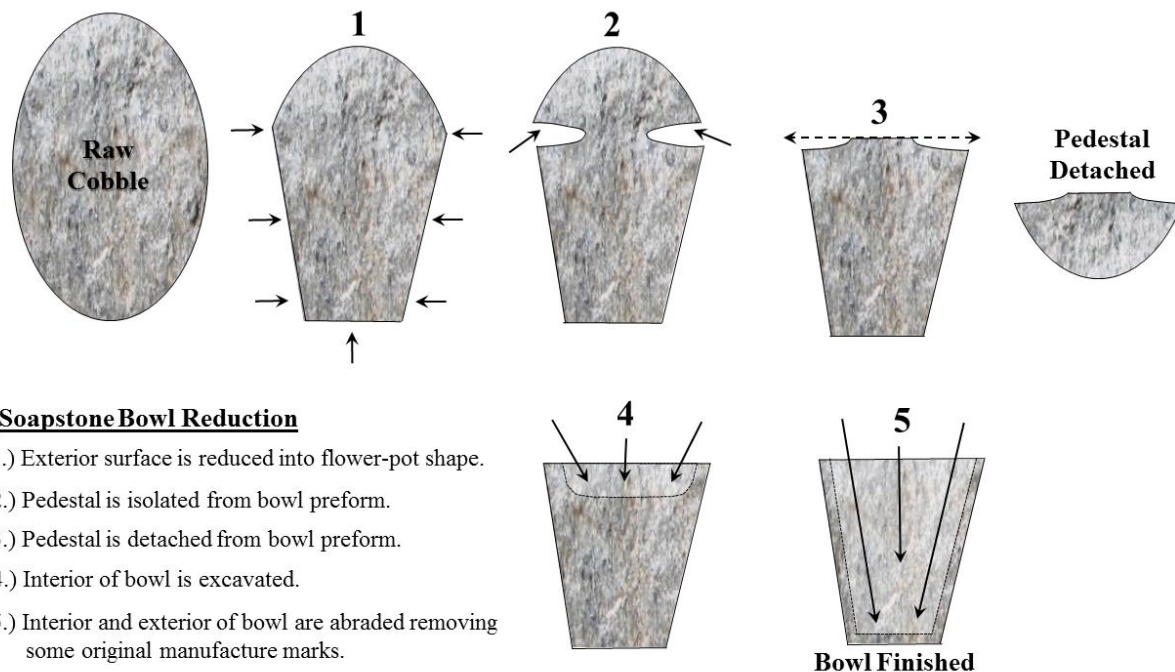
Dinwoody area, this site type is on average smaller than those that contain domestic features.

Lithic debitage at domestic or at lithic scatters is consist with local sources but needs to be

formally tested. Tool diversity is varied with some locations containing multiple formal/diagnostic tools and some only debitage.

A total of eleven soapstone workshops were identified across all four survey areas. The artifacts at these locations indicate reduction episodes of soapstone cobbles to produce finished bowls. Refuse material found at these sites indicate that soapstone bowl production advances through stages with each “stage” present at one or more location (Figure 3). A total of five stages are distinguishable in the production of a bowl. 1.) The exterior of a steatite cobble is shaped through percussion flaking, pecking, abrading, or a combination of all three reduction processes. 2.) A cobble portion not shaped during the first process is isolated through girdling or ringing the cobble to produce a pedestal. This isolation is done by means of pecking. 3.) The isolated pedestal is detached with a sudden forceful blow to the ringed area. 4.) The interior of the bowl is excavated through a combination of pecking, gouging, and abrading. This shaping is done until the interior is roughed out. 5.) In this final stage, the interior and exterior are abraded with a coarse stone (like sandstone found at many of these workshops) finishing the bowl and removing some or all of the primary manufacture marks. Soapstone debitage accompanied by a bowl preform(s) in one or more of the various stages described above are what define these soapstone workshops.

Figure 3. Soapstone bowl reduction by stages from raw cobble to finished bowl.



The remaining site types include “U” or arc-shaped structures interpreted as hunting features with no associated lithic debris (n=3). Although these features are of similar morphology to structures interpreted as vision quests, their placement on the landscape – on or near game trails – suggests use as hunting features rather than as fasting (Morgan et al. 2014; Weimer 2009). The final site type is a single artifact cache of small atypical tri-notched projectile points in the Torrey Creek drainage.

Relative and Chronometric Dates

Chronometric data for the northern Wind River Range are limited to HRV and Burnt Wickiup sites (Adams 2010:73; Losey 2013; Morgan et al. 2012). Losey interprets the chronometric data at HRV to indicate a Uinta Phase occupation and dismisses the younger dates (Losey 2013:96). This is an interesting interpretation given the noted old-wood problem, and

the much higher frequency of materials diagnostic of the Firehole and not Uinta Phase at the HRV site (Figure 4) (Koenig 2010; Husted and Edgar 2002:112; Morgan et al. 2012; Thompson and Pastor 1995:53). HRV was certainly used during the Uinta Phase but rather the interpretation might be glossing over the occupation history and ignoring dating pitfalls (i.e., old wood)?

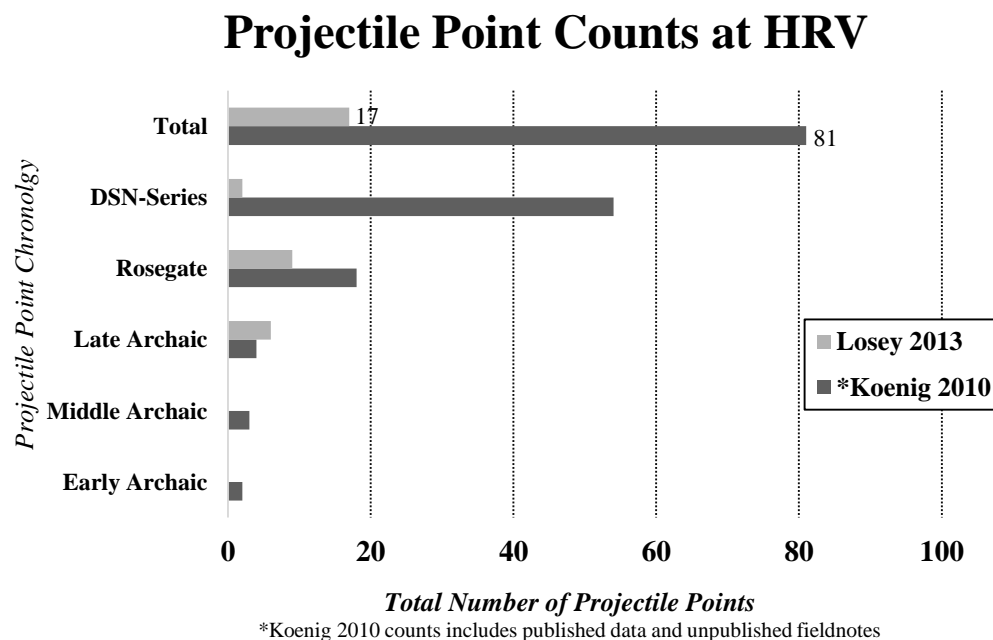


Figure 4. Combined projectile point counts from the High Rise Village site in the Torrey Creek survey area.

The same problem is noted in the chronometric data from the Burnt Wickiup that suggests a Uinta Phase occupation (Adams 2010:73). However, a majority of diagnostic materials recorded in the lodge pads firmly places the Burnt Wickiup in the Firehole phase, extending through European contact. Diagnostic projectile points found across all four survey areas further indicate the complex history of use in the alpine environment.

In all of the reported sites across the four survey areas we have found 102 unquestionable diagnostics projectile points. Folsom is the oldest diagnostic projectile point found and reported

from our survey areas, but, was not a result of the survey work reported here (Young et al. 2008). As a general trend across all areas surveyed, DSN-series Late Prehistoric projectile points are the most common occurring style, followed by those projectiles diagnostic of Late and then Middle Archaic periods. This pattern is different when each survey area is examined individually.

Variation in diagnostic projectile points are noted by both site type and survey area. The Roaring Fork contains the highest frequency of lithic scatters and almost half of the projectile points found on these sites are diagnostic of the Late Archaic or Deadman Wash phase. Lithic scatters lacking residential features in the Dinwoody, Jakey, and Torrey creek areas also contain higher frequencies of projectile points diagnostic of the Late Archaic and Middle Archaic periods. Survey areas where a large sites of residential cut-and-fill style lodge pads are situated contain more late prehistoric diagnostic projectile points than those without. In fact, excluding one small lithic scatter in the Dinwoody Creek area, late prehistoric or Firehole Phase projectile points are found almost exclusively at locations with domestic features. The Jakey's Fork is the anomalous survey area regarding these trends. Overall it contains smaller sites (less area m²) and almost no diagnostic projectile points. The Jakey's Fork does however contain the only soapstone bowl preform cache recorded in the northern Wind River Range and possibly all of the Rocky Mountain region. These artifacts appear to be diagnostic of the Protohistoric period and lack of stone projectile points may be in part because metal is more prevalent in this drainage system.

DISCUSSION AND FUTURE RESEARCH

It is important to iterate that these reported results are based on surface surveys and small excavations restricted to the northern Wind River Range, so there are limits to this discussion.

Even considering these limitations, they do indicate patterns or differentiation in usage of space. These preliminary results hint at the variable diachronic use that may best be understood in terms of adaptive shifts and chronological sequences outlined for the Wyoming Basin (Metcalf and McDonald 2012).

All of the Paleo-indian period projectile points reported here were located in lithic surface scatters that also contained archaic period diagnostics. Excluding the single Folsom base, the five squared-and-stemmed projectile point bases are broadly diagnostic of the Late Paleo-indian period. These early diagnostics cautiously constitute outward evidence the shift from big-game mobile forager to broad-spectrum upland use suggested by Metcalf and McDonald (2012) for the Wyoming Basin, and are suggestive of a persistent place argument (see Bender this volume). However, it is also plausible that the archaic use of the mountains during Great Divide and Opal Phases reused paleo diagnostics from other locations, or paleo occupations were largely erased through post-depositional processes (Schiffer 1972:159; Todd, this volume). There is a better record of archaic use in the alpine environment of the northern Wind River Range than there is for Paleo-indian use.

There is a low frequency of large-side notched projectile points of the Great Divide and Opal Phases we have recorded as a result of this survey work. There are no clear indicators of pit storage or subterranean domestic features like those described for the Wyoming Basin for any of the archaic periods; this may be a taphonomic issue that warrants further research (Metcalf and McDonald 2012). With our current data the Opal and Great Divide Phases are not well represented. Contemporary speculation attributes this underrepresentation to the more circumscribed use of lower interior basins, with groups employing central-place foraging patterns that excluded upland environments (Metcalf and McDonald 2012). The Pine Springs

Phase, or Middle Archaic is better represented than the preceding phases, signaled by Great Basin – Pinto, and Northwestern Plains, McKean style points. If the presence of McKean style projectile points represents the incursion of mobile foragers in the Wyoming Basin, the same may hold true for the Middle Rocky Mountains (Metcalf and McDonald 2012; Thompson and Pastor 1995). How Pinto, Humboldt, and McKean style projectile points relate to one another in lowland and upland environments is a query that additional Middle Rocky Mountains research can elucidate.

The differential frequencies of projectile points diagnostic of the Deadman Wash Phase in each survey area hints at specific preferential use versus long term generalized exploitation of different drainage systems. The discovery of diagnostics at residential sites with domestic features would be unique for the phase if found to be coeval (Thompson and Pastor 1995:52) but, in general Deadman Wash is well represented in our data but understudied as a whole.

Sites like Helen Looking Bill are evidence of a sustained use of nearby montane environments by archaic groups but alpine data are not robust enough to suggest more than a simple use at this time (Kornfeld et al. 2001; Larson 1991). Discernment of a distinct archaic occupation seems to be questionable with diagnostic projectile points of all periods mixed in lithic scatters in all four survey areas. If the DSN-Series projectile points from domestic features are removed from total point counts, archaic projectile points are the most common found across the areas surveyed. The associated archaic sites range from small uniform lithic scatters to large diverse tool scatters with groundstone, and both groundstone archaic diagnostic are on these larger residential sites but there is no clear association with domestic features. Poor preservation renders subsistence data unavailable and recent test for lipids on groundstone have proved unsuccessful (Losey 2013). A more concerted effort to better understand the archaic use with

more data (Great Divide – Deadman Wash Phase) specific to Middle Rocky Mountains alpine environment is needed.

The higher frequency of radiocarbon dates characteristic of the Uinta Phase seems evident at the HRV site in the Torrey Creek drainage, despite the much lower ratio of Rosegate to the DSN-Series projectile points found at these residential sites. The same pattern is evident with the dates published from the Burnt Wickiup site with more DSN-Series, European trade goods, and ceramics of the Firehole Phase than any Uinta Phase diagnostics. Protracted reuse of space by the most recent groups that have robbed residential sites of these Uinta Phase diagnostics may be a plausible explanation. Because of the shallow deposits on HRV and Burnt Wickiup it is also very possible we have failed to recognize reuse of space in excavations. There is of course the pertinence of the noted old wood problem at these alpine residential sites that influences all the radiocarbon data. All things being equal regarding the old-wood problem, a major question still remains: why are radiocarbon dates of the Uinta Phase so common and diagnostic materials so few? Regardless, at the onset of the Uinta Phase it appears both the alpine and subalpine environments of the northern Wind River Range saw protracted use of domestic features as part of a broader adaptive shift, just how long this residential pattern persisted is a matter for future research .

At this point research on steatite artifacts in the mountains is in its early stage. Adams (1992, 2006, 2010) has been instrumental in identifying steatite manufacture technology thus far in the Middle Rocky Mountains. The discovery of soapstone artifacts and in particular bowl preforms in each survey area is strong evidence of utilization of a mountain specific resource in the Middle Rocky Mountains. The distribution of this material down to lower elevation is compelling evidence of a connection between lowland/upland groups and mobility between

those groups. If Adams's (2006, 2010) dates hold for soapstone vessels these artifacts are diagnostic of the Firehole Phase/historic use by indigenous groups of the alpine and subalpine. Furthermore, the discovery of reduction episodes for bowls in the mountain environment provides alpine researchers with a framework to view bowl production but also a new site type (and associated debris) heretofore unidentified in the research. There may also be a gender component to soapstone learning and transmission similar to those suggested for ceramics or basketry (Adovasio et al. 2002). Lastly soapstone reduction sites and artifacts may act as a barometer for occupation of the subalpine and alpine environments. If we can date locations with steatite vessel manufacture evidence, it will better clarify which period(s) the Middle Rocky Mountains were specifically targeted and perhaps more intensively used.

Future Research

The years of previous research in the northern Wind River Range of the Middle Rocky Mountains has focused primarily on "villages" (better labeled as residential sites until coeval occupation of domestic features is demonstrated) possibly associated with whitebark pine procurement (Adams 2010; Morgan et al. 2012; Stirn 2014). In some interpretation there is a focus and bias on ethnic utilization. A similar ethnographical and historic bias has been identified in the late prehistoric period of the Great Plains. Mitchell (2006:388) addresses the problem as an "association between specific material forms and particular ethnic identities" with an over reliance on the direct historical approach (DHA). Donna Roper (2007) argues the original practitioners of DHA on the Central Plains in fact never meant for the ethnic identities to reach into the late prehistoric period. Instead it was a reliance on using historic and ethnographic accounts as a source for specific analogies for the archaeological record that created

“tautological and static interpretations” (Roper 2007:786). This overemphasis on analogue resulted in historic sites being more adequately interpreted and the variation inherent in earlier sites was glossed over because historic accounts were used to interpret and not create hypothesis. A similar problem is identified in the residential locations of the Middle Rocky Mountains that clearly have a much longer and protracted use than is appropriate for interpretations based on local ethnographic records (Adams 2010; Losey 2013; Morgan et al. 2012). This observation is not to eschew ethnohistorical models but does suggest, as others have (Finley, this volume; Morgan et al. 2012), more nuanced and age specific models for the Middle Rocky Mountains and associated basin environments (e.g. Madsen 2002; Metcalf and McDonald 2012). Our example of Soapstone vessels as a Firehole phase mountain specific resource is one such example.

From a diachronic perspective our reported survey results indicate a use of the northern Wind River Range not limited to soapstone procurement and whitebark pine (*Pinus albicaulis*) extraction. The alpine environment was utilized in a time-transgressive manner, the scheduling and longevity of which is an open field of research. Our results, in conjunction with other discoveries, including organics material found in ice fields, indicate archaic groups were using alpine environments to hunt but this research is preliminary (Reckin 2013). The significance of large toolstone quarries in the alpine of the northern Wind River Range, in terms of tool attrition and procurement strategies, has received no attention. Comparisons of lithic debris in different areas of the Wind River Range may tease out or elucidate or explain or produce patterns across space/time. The possibility that these quarries were desirable for lowland groups needs to be a part of northern Wind River Range research specifically, and Middle Rocky Mountains investigations in general. Adams (2010) and Stirn (2014) have acknowledged the lack of large

hunting complexes in the northern Wind River Range, common in the southern Rocky Mountains or adjacent Absaroka Mountains (Benedict 1996; LaBelle and Pelton 2013), as well as the absence of religious structures found in other alpine contexts (Brunswick 2009; et al. Weimer 2009). The archaeological record of older time periods in the northern Wind River Range is more like the alpine of the California and should be approached similarly (Bird et al. 2001; Benedict 1992; Hildebrandt and McGuire 2002; Zenah 2010).

CONCLUSION

Great Basin researchers have challenged colleagues in the Middle Rocky Mountains to be more theoretical in their interpretation of upland data and the years of work in the Wyoming Basin outline key phases and adaptive shifts that alpine researchers have begun to incorporate (Losey 2013; Morgan et al. 2012; Metcalf and McDonald 2012). To date, alpine work has largely focused on residential sites located in the Dinwoody and Torrey Creek drainages. These sites indicate differential periods of use during the Late Prehistoric during the Uinta and Firehole Phases. Our additional survey work indicates more depth of use for the alpine environments of the northern Wind River Range. Materials from discovered surface scatters identified every phase in the Wyoming Basin is also present in the alpine. As in the Wyoming Basin, a Northwest Plains influence may very well be acting on the mountains, and sustained research is needed to see if this pattern holds for the northern Wind River Range. Discovery of soapstone bowls, manufactured through a distinct reduction sequence, in both upland and lowland environments is evidence of utilization of a mountain specific resource. Dating of both soapstone bowls and bowl preforms is important to further clarify if these artifacts are Firehole Phase diagnostics or if their use extends back to the Uinta Phase. Currently, lithic artifacts, including soapstone bowls

are strong indicators of transhumant use in Middle Rocky Mountains (Adams 2006, 2010; Finley, this volume). The temporal depth of transhumant use of uplands is a matter that future research will address especially as alpine research becomes common. The imperative of alpine research is prescient especially as the effects of modern climate change alter montane environments and offer new challenges and opportunities (such as melting ice patch investigations) to mountain specific archaeological resources (Todd, this volume).

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CHAPTER 3

THE BASIN AND THE SOWN:

Ethnic Identity at the Edge of the Eastern Great Basin

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ABSTRACT

Both the emergence and maintenance of the Eastern Shoshone is a topic of considerable depth in Middle Rocky Mountains research. This is done with an association of specific artifact classes with the Shoshone and while questioned is still practiced, especially the closer to the historical point of contact interpreted materials are. Often these studies lack thorough and thoughtful review of the complexities of the polyethnic social environment the Eastern Shoshone were enmeshed. This chapter reviews both the anthropological literature and the archaeological literature in reference to ethnic interpretations on a broad-scale. This offers both a critique and direction for Eastern Shoshone researchers of the Middle Rocky Mountains.

INTRODUCTION

The interpretation and construction of ethnic identities from material remains has a long and checkered history in archaeology (Jones 1997). At one end the roots are in nationalism and some argue colonial attempts to control descendant and indigenous population's pasts as well as their own historical trajectories (Jones 1997). At the other, a complete dismissal of ethnicity and the ability of archaeologists to interpret it from the material record (Larson and Kornfeld 1994). The subsequent analysis and historical overview covers the middle-ground with those who have attempted to interpret ethnicity and in particular that of the archaeological and ethnographic record of hunter-gatherers. Within this middle ground the designation of specific ethnicities from archaeological materials concerned with hunting and gathering groups are becoming both more nuanced and locally focused (cf. Boyd and Richerson 2005). At a heuristic level most ethnic studies are reducible to the central tenets of the classic Binford – Bordes debate, the literature for which is easily accessible, as it is not an obscure local culture-history squabble, and each side frames the concepts of objectivist and subjectivist approaches most ethnic studies are built. The terminology for ethnic designations in this review follows the work of Jones (1997) and Jenkins (2004, 2008). This review is used to illustrate how researchers in the Middle Rocky Mountains have used ethnicity archaeologically in the emergence, migration, and maintenance of Shoshonean groups (The Numic branch of the Uto-Aztekan language family).

In the Middle Rocky Mountains the Eastern/Mountain Shoshone are associated with a suite of material objects that co-occur within territory ethnohistorians recorded as historically occupied by these groups (Shimkin 1947; Lowie 1909, 1924; Murphy and Murphy 1960). The materials found archaeologically are coeval with European goods and predate by as much half a millennium. In the larger migratory context known as the Numic Spread the Eastern/Mountain

Shoshone represent the second to the last stop of a proposed eastern migration that began in Death Valley, California (The Comanche being the last to split off the larger Numic group (Adams 2010; Davis 1975; Dominick 1964; Eakin 2005; Frison 1971; Holmer 1994; Husted and Edgar 2002; Janetski 1994; Larson and Kornfeld 1994; Nabokov and Loendorf 2004; Newton 2011; Scheiber and Finley 2010, 2011; Spath 1988; Stirn, this volume; Thompson and Pastor 1995). There are two issues associated with cultural material argued to represent the Eastern/Mountain Shoshone that need to be untangled. The first issue is the historical accounts of specific artifacts with these groups, the co-occurrence of those material with a larger suite of cultural materials and the consistent occurrence of all these cultural materials within territory recorded at historic contact. The second is the proposed maintenance of this same suite of material from an emergence point (via a population migration or in-situ development) to and through historical contact. Each of these relies on a predefined notion of ethnicity by the researcher; elucidated here in broader review of anthropological and archaeological studies concerned with historical and modern ethnicity studies. This review provides a context for defining archaeological interpretations of Shoshonean groups in the Middle Rocky Mountains first in the context of the larger Numic Spread and then on a local level (i.e. Middle Rocky Mountains). This paper ends by addressing if it is appropriate for archaeologists of the Middle Rocky Mountain region to use ethnic affiliations for temporally diagnostic materials.

Early Use of Ethnicity – Sides Defined

Many early practitioners of archaeology determined ethnicity using a one-to-one classification method (defined as the objectivist approach), characterized by reading ethnic affiliation from discarded cultural materials. This approach may have roots in the work of Lewis

Henry Morgan (1877), but is probably more attributable to the excavations of Nels C. Nelson at Tano Ruins in 1916 (Nelson 1916). While the main goals of these early excavations were to build chronological sequences, his interpretations tilted the analytic lens of archaeology towards the representational power of artifact classes, and, in essence, invented archaeological cultures based on artifact classes (Jones 2007). Central to the idea is each culture is bound together by specific norms distinct to a region. The normative view of culture as it is known suggests human groups conform to and pass on similar behavior from generation to generation (Webster 2009:12). The archaeologist then, through constructing trait lists of stratigraphically associated artifact classes could track the limits and the history of specific cultures throughout various regions (Trigger 2006, Webster 2009). The culture-history approach, as it became known, first saw artifact classes as datable materials, then later as tangible markers for distinct cultural groups. Dissatisfaction with the culture-history paradigm was in part the foundation of the now infamous debate between Francis Bordes and Lewis Binford (1973).

Francis Bordes, proposed four distinct Mousterian ethnic groups based on his initial work at Le Moustier a Paleolithic site in southwestern France (Wargo 2009). He called these cultural groups *facies* (Typical, Charentian, Denticulate and Mousterian of Acheulean) and based them on the percentage of specific artifact classes present on sites (Bordes 1973; Wargo 2009). The explanation Bordes offered for the differing tool assemblages was Mousterian ‘tribal’ groups (Wargo 1998). As Wargo (2009:73) states, “Bordes thought the Mousterian *facies* he identified in his taxonomy were reflective of some tangible prehistoric reality and that those *facies* had some inherent cultural meaning in the past.” The counter argument from Binford was a functional explanation for the various tool types (Binford 1973). Essentially, Binford saw Bordes’ Mousterian ‘tribes’ as functional camps or ‘specific activity areas’ of a single ‘culture’

spread across the landscape, not culturally or ethnically distinct groups. However, Binford did (1973:245) admit, “among contemporary peoples ethnicity is more frequently directly demonstrable through morphological variations between different localized groups with respect to roughly analogous functional classes of tools.” Essentially ethnicity might be visible in the archaeological record in ‘functional classes of tools’ found in ‘localized’ groups (i.e. people living under similar environmental conditions during the same periods) (Binford 1973).

Furthering this position, Binford thought for an item to have ethnic or social significance it must be immediately perceived as different by another culture (Binford 1973). As he states, “I find it difficult to imagine that something remote as a scraper index could have direct ethnic or social symbolic significance (1973:245). It is important to note the Binford-Bordes debate was in part on how much the function/use of an artifact biased interpretations. Outside of the functionality argument, neither opponent denied that ethnicity could be interpreted from the archaeological record. They just disagreed on how to do so. This debate contextualizes how many archaeologists view ethnicity in the archaeological record; impossible on one end and naturally bound in the material of archaeological cultures at the other (Jones 1997). But what is ethnicity, and how do anthropologists approach it in living groups?

ETHNICITY DEFINED

The Binford-Bordes debate was not the only attempt to approach ethnicity in archaeology but it describes opposing views in the use of ethnicity in archaeology. Bordes’ (1973) position views ethnicity as a bounded entity embedded in material culture, and specific ethnic groups are specific “culture-bearing units.” Binford argued ethnicity is outside the focus of technological/behavioral oriented analyses and as an internal cultural construct (the ideo-technic)

ethnicity must be approached with caution, if at all. However, Binford's dissatisfaction with Bordes approach never addressed living ethnic groups, an issue Bordes never really addresses either. During Bordes-Binford debate a Swedish cultural anthropologist, Fredrik Barth, developed the very definition of ethnic groups many anthropologists still use today.

Fredrik Barth's early work on ethnic boundaries is among the first attempts at understanding maintenance across disparate groups. Barth (1998[1969]:10-11) saw ethnicity as defined in the anthropological literature of the time as a population which:

- 1.) is largely biologically self-perpetuating
- 2.) shares fundamental cultural values, realized in overt unity in cultural forms
- 3.) makes up a field of communication and interaction
- 4.) has a membership which identified by others, as constituting a category

distinguishable from other categories of same order.

However, Barth (1998[1969]:11) saw this definition as similar to the prevailing idea of "race = culture = language," solidifying the idea that specific societies were "pelagic islands," and did little to address the maintenance of ethnic groups. His focus was on how ethnically distinct groups maintain their boundaries while freely moving across them to contact other groups (conventionally, ethnicity was thought to be a product of isolation). For Barth, the social boundary of an ethnic group has to remain fluid internally while externally projecting differences to other groups (1998[1969]). The members of a defined group must have prescribed ideals of what is appropriate in interactions with another group, and these internal prescriptions must be consciously safeguard from alteration (Barth 1998 [1969]:16). This view of ethnic groups shifted focus from the analysis of ethnicity as bounded entities, and is widely cited as the first attempt at defining ethnicity in living groups (Lucy 2005).

Subsequent approaches in ethnicity studies focused on one of two discrete categories: an emic and etic form of analysis (Jones 1997). The etic construct, described as an ‘objectivists construct,’ views ethnic groups as only being a unit of analysis created by the analyst (Jones 1997:56-57). Objectivists, “see ethnicity as social and cultural entities with distinct boundaries characterized by relative isolation and lack of interaction” (Jones 1997:57). It can be argued that Barth worked from a ‘middle-of-the-road’ objectivist approach, compared to most archaeologists who work from a firm objectivist approach. In contrast, subjectivist studies stress the emic perspective defining ethnic groups in terms of internal subjective self-categorizations (Jones 1997:57). There are several approaches outlined within the subjectivist approach. The first is what Jones (1997:65) and Lucy (2005) identify as the ‘primordial imperative approach.

The Primordial Approach

The primordial approach looks at the inherent quality of ethnicity (Lucy 2005). This view takes ethnicity as a birth right. Jenkins states (2004:65) “ethnicity... is an important part of self-identification. Individuals often learn frameworks for classifying themselves and others by ethnicity ... during childhood. The ideologies of collective descent ... frequently underpin ethnicity.” The failing of this approach is that it offers a regimented view of ethnicity. It is something you either have or do not, and this seems to confuse ethnicity with race = language = culture, an idea that most researchers are uncomfortable with. This approach further suggests that ethnicity is involuntary and rooted in atavistic views of identity, which does not pay attention to the historical context of the development or application of ethnic identity (Jones 1997). When objectivist practitioners themselves are examined, they are more commonly seen

as being a product of nations that view ethnicity as natural and miss the complexities of their national heritage (Jones 1997). The classic example is America's invention of a common heritage when in fact it is the culmination of polythetic entities occupying the same space (see discussion of Connor (1978) in Jones (1997:71).

The Instrumental Approach

The instrumental approach, in contrast to the primordial, emphasizes ethnicity as a relationship embedded in economic or social situations. As Jones (1997:72) states, this approach is "characterized by a concern with the role of ethnicity in the mediation of social relations and the negotiation of access to resources primarily economic and political." Individual, not group, agency is seen as the primary means by which ethnicity is constructed. Individuals can (in some cases) move freely across ethnic lines yet ethnic identity is retained. Barth (1998[1969]:23) illustrates a reciprocal relationship in Sudan between herdsmen, the Baggara, and agriculturalists, the Fur, who both occupy the same economic niche and provide resources to one another. However, while some Fur individuals move across ethnic lines and adopt the identity of the Baggara pastoralists, Baggara do not become Fur. Presumably this is due to "limited investments in the Fur economy" (Jones 1997:73). The point to stress here is that every Fur does not, at once, drop agricultural and immediately become Baggara. Individuals choose to adopt or retain their specific ethnicities. In this context it appears ethnic identity can be a situational construct that is individually defined rather than externally defined (Lucy 2005:95).

What is Ethnicity?

What we have seen in anthropology is an evolution that stresses first the etic view and progressively moves towards an emic view of ethnicity. The objectivist view appears to no longer be *en vogue* in cultural studies. In the subjectivist camp, most studies centered on ethnicity seem to work to bridge the primordial and instrumental approaches. The best characterization of the primordial approach in is the work of Richard Jenkins:

Our culture – language, non-verbals, dress, food, the structure of space, etc. – we encounter it and live it during socialization and subsequently, is *for us* simply something that *is*. When identity is problematized during interaction across the boundary, we have to make explicit – to ourselves as much as to Others – that which we have hitherto known without *knowing* about. ... the embodied and unreflexive everyday practical mastery of culture: unsystematic. The empire of habit, neither conscious nor unconscious. Nothing could be more basic and nothing more inextricable implicated in ethnicity (Jenkins 2008:79 emphasis original).

This characterization of the primordial bond, or an allegiance to an ethnic identity, is probably not an inappropriate way to approach ethnicity in some situations. However, this limits the complexity of the ethnicity. Jenkins (2008:49) himself illustrates this in saying, “ethnicity, or at least an awareness of it, is likely to figure in different ways, with different social costs and benefits (consequences) attached, in each place and at each time. Denmark in 2007 is not the same as growing up in Denmark in 1944.” Ethnicity can then be ascribed at birth, but, time and different social/economic opportunities do influence the primordial bond. Therefore, it becomes difficult to separate the primordial from the instrumental and even more difficult to define what ethnicity is.

A consensus reached by most researchers is there is no isomorphic relationship between race and language, or language and culture, or any other combination of the race – language – culture sequence one can comprise. As many state, it is a process of ascription both internally

and externally (Barth 1998[1968]; Jenkins 2008; Jones 1997; Lucy 2005). However, the thought of ascription in debates centered on ethnicity is also seen as troubling because “it runs the risk of reifying the ethnic group” (Lucy 2005:95). Ethnicity is currently seen as being “an aspect of a relationship” embedded within an “ongoing historical processes” (Lucy 2005:95). Portrayed by Lucy (2005) as:

Ethnic groups do not, then, constitute a ‘natural’ order. They are more an idea, which is dependent on constant reiteration through both everyday actions and discursive practice, rather than a solid thing. They are dependent on social relationships that have to be continually recreated, and the boundaries of those groups thereby redefined. People can leave ethnic groups and join others, and they can hold a range of different ethnic, local or other communal identities without the idea of the ethnic group being challenged, if enough people believe in it (97).

In cultural studies, ethnicity is found to be a complex construct that is fluid and constantly redefined by individuals, and is often situational. So how has archaeology dealt with something as fluid and perhaps superficial as ethnicity?

Ethnicity in Archaeology

When interpreting ethnicity from the archaeological record it must be assumed that ethnicity will not always be visible. Furthermore, we have to assume as Lucy (2005:109) warns, “ethnicity may not have been as relevant to people in the past as it seems to be in the present, and that any patterning ... we do discern may be due to other types of communal identities, such as familial lineages or territorial groups other than anything we, from our modern perspective, might recognize as ethnically based.”

Ethnicity studies in archaeology are best defined under the objectivist’s approach (Jenkins 2008; Jones 1997). Because this approach projects categorization it is easy to see why

it has been favored in archaeological analyses. Best associated with the cultural-history epistemology, practitioners argue for a normative approach to culture and stress similarity in material culture as a representation of once living cultural group (Larson and Kornfeld 1994). Bordes' Mousterian 'cultures' is a good example of ethnic construction interpreted under an objectivist approach. Whereas Binford's (1973) critique rested on the internal 'cultural' use of material objects and better characterizes subjectivist approaches in archaeology.

Binford's concern with the stagnant nature of archaeology as a descriptive discipline and led a call to transform it into an interpretive and ultimate scientific discipline. This call pushed the subjectivist approach into archaeology. An example specific to ethnicity is the ethnoarchaeology work of Ian Hodder (1977), whose Lake Baringo research focused on, "When do ethnic units identify themselves in material culture?"; and, "What happens at material culture boundaries" (Hodder 1982:1)? In regards to the first question, Hodder (1982) found that certain items of material culture did indicate specific ethnic boundaries in three groups occupying Lake Baringo in Kenya. Interestingly, marriage between some groups does not erode this expression because marriage *into* one group means near complete adoption of that group's material culture usually across all aspects of life (Hodder 1982:18-21). However, these individuals freely move across territorial boundaries simply by changing back and forth between appropriate clothing and ear decorations. This appears to be more common practice along the boundaries, where population is denser and economic pressure greater (Hodder 1982). This picture is even more complex when generational differences are considered. Each age of women preferred different ear spools and while these still do fall along ethnic lines it indicates that material culture can, and should be, conservatively applied to ethnic groups even from an emic perspective. Still, other archaeologists have argued that by focusing on stylistic similarities in the production

process of artifacts, (from raw materials chosen to finished product), ethnic identity can be elucidated.

Sackett (1990) developed a form of analysis dubbed *isochrestic* wherein style is not simply synonymous with decoration. Style encompasses not only the outer appearance, or ‘decoration’ (adjunctism), but also all the manufacture, materials, shape, and thickness that comprise the artifact. These variables taken as a whole are diagnostic of particular groups. Sackett (1990) views functionality as being wed to stylistic variation. That is to say both use and construction are ethnic indicators. The example offered by Sackett (1990:38) is that of a naïve archaeologist working on a WWI battle site wherein, functionally, the archaeological signature of a medic station would look similar on either side of a battlefield. But anyone focusing on the subtle differences, “would have no difficulty appreciating the stylistic distinction between the Mauser and Lebel and between the Frenchman’s *casque* and the German *Stahlhelm*” (Sackett 1990:38). For Sackett material culture is a “relatively coarse unit” for viewing ethnicity but suffices in contexts where the “artisans themselves are anonymous” (1990:39). Material culture in an isochrestic analysis is the product of shared mental templates actively constructed through participation in a group, this, of course, downplays the role of agency. More recent studies have stressed the role of individual agency in ethnic studies and give a much more cautious approach to ethnic studies in general.

The most recent attempts among archaeologists to identify ethnicity link subjectivist and objectivist (like cultural anthropologists) approaches with Bourdieu’s theory of practice (1977). Jones (1997; 2007) sees particular application in Bourdieu’s idea of *habitus* wherein new experiences are a product of socialization with past experiences carrying weight and unconsciously influencing individual practice. Studies that accept the principal of habitus are

concerned with the internal, unquestioned social structures as well as the externally structured structures, clearly stated as, “the structuring structures as well as the structured structures” (Bourdieu 1977:72 in Jones 1997:88). The appeal of habitus is that it gives credence to external variables (environment, phenotypic expression, language) as well as internal agency in the production of a single ethnic identity. As such, ethnicity in archaeology is now seen as being embedded in a complex web of identity, “fraught with difficulties...impossible for many archaeologists” (Meskell 2002:286). Untangling this web of identity in which ethnicity is a part seems to rest on the goals of archaeological epistemology. Many archaeologists recognize the difficulties of reconstructing ethnicity and instead suggest diachronic studies centered on large-scale patterned behavior (cf. Schiffer 2011). Specific to the Numic Spread some see it as a worthy avenue for exploration and do not question its construction (cf. Scheiber and Finley 2010). Both of these approaches are worthy venues but are not without pitfalls. Consequently, all of these approaches (and some not outlined) are used in the spread of Numic speaking people thought the Great Basin and Intermountain West, an idea that seems to expel and simultaneously espouse ethnicity.

THE NUMIC SPREAD: A CASE STUDY

The Numic Spread is a generalized hypothesis focused on the origins and dispersal of indigenous groups historically documented across most of the Intermountain West. It is the focus of multi-disciplinary research that deals with as much as a millennium of cultural change and stasis (smaller group argues as much as nine millennia worth of both cultural and linguistic cohesion and change (Husted 2002). This spread takes place over a massive track of land, at least 200,000 square miles, across multiple ecosystems (Fowler and Fowler 2008). The debate in

general employs historically encountered groups (i.e., ethnicity groups) as proxies for both linguistic studies and archaeologically-defined cultures (the latter seems to create the former in these arguments). The research into the proposed spread has a long and checkered history with over 60 years of denigration or praise. It is a perfect example of the complex relationship between ethnic interpretations and the archaeological record.

An inherent assumption in the Numic Spread model is that indigenous groups who spoke (and continue to speak) various dialects of languages classified as Numic (Uto-Aztecan), and who were historically encountered ‘across the west’ by European and Spanish colonialists, originated in California. As the prominence of archaeology rose in California researchers turned their attention to links between the archaeological record and living cultures. At first, the Numic spread was a purely archaeological problem. It was proposed by Julian Steward in the southwest to explain the presence of two archaeological hunting and gathering cultures: the Basketmaker and the Shoshone. According to Steward, the earlier Basket Maker culture preceded Shoshonean groups and gave them the necessary cultural elements to exploit desert environments (Sutton and Rhode 1994). However, this idea was discounted when materials belonging to both ‘cultures’ were radiocarbon dated and found to not be temporally linked (Sutton and Rhode 1994). The expansion then became a linguistic problem when Sydney Lamb applied glottochronology to the distribution of languages broadly subsumed under the Uto-Aztecan language family.

Lamb suggested that people speaking various dialects of Numic languages recently expanded across the Great Basin (ca. AD 1000), due to the lack of linguistic diversity outside of the proposed Numic homeland (Death Valley). Lamb’s proposed date of expansion had the unintended consequence of Death Valley eastwards across the Great Basin for all future researchers. He proposed the date of expansion based on a list of cognates between various

dialects of Numic languages. He assumed a constant rate of change for these cognate lists and ultimately provided a maximum date for the language change across the Great Basin. This ‘magic date’ (see Thomas 1994:56-57) of AD 1000 has provided a temporal point to which most of the archaeological work in the Great Basin is fixed. Lamb gave archaeologists in the Great Basin both a date on which to fix their findings and the direction of travel. Artifact classes found within spatial/temporal areas were associated with Numic speaking groups, so much so that by the time the nature of this relationship was questioned the Numic, to some, were identifiable through a suite of archaeologically diagnostic material.

Rhode and Madsen (1994:218) state the ‘who’ associated with the material record is a matter of different scales: the macro-scale argues for ethnic populations, the micro-scale involves individuals to small groups. The use of either articulates with larger pan-Numic interpretations down to local populations (Rhode and Madsen 1994). There is very much two problems at play in the interpretation of the Numic Spread from archaeological materials; the movement of either whole ethnic populations or individuals to small groups as projected through several dispersal scenarios: 1.) In-situ development, 2.) Lamb’s proposed migration of AD 1000 from Death Valley, 3.) an earlier migration of 4500 cal BP from the Death Valley, 4.) or a central Nevada migration at 1000 BP. The results derived from each scenario (or scenarios) suggest the homogeneity seen in the archaeological record is specific to historical recorded groups in areas, or on the larger scale artifacts do not represent ethnic groups but rather recognizable and patterned behaviors played out across space (Rhode and Madsen 1994). Using the above review of ethnicity studies the remainder of this chapter focuses on both the Numic expansion and associated ethnicity from a Middle Rocky Mountain perspective.

The Wind River Shoshone or Eastern Shoshone and the Mountain Shoshone

The members of the Numic speaking subfamily of the large Uto-Aztecan language stock historically recorded in the Middle Rocky Mountains include the Eastern Shoshone with a fuzzy division between Buffalo Eaters and Mountain Seep Eaters (Adams 2010; Shimkin 1986). The actual autonomy of the two groups is questionable. The concern has focused more on who the Mountain Shoshone were, Adams (2010:22) using historical documents of encounters with either group stated “Regional groups were named for the dominance of a particular food in the diet of that group and while they were not formal political units and membership was flexible, they were tied to specific areas.” Susan Hughes (2000) argued the designation of one group the Sheepeater or Mountain Shoshone as anything separate is a myth perpetuated by European ethnocentrism, a poor understanding of Shoshonean band structure, and misconstrued their naming conventions. The definition provided by Demetri Shimkin (1947:246) for all of the Wind River or Eastern Shoshone confirms this position:

The identification of the Wind River Shoshone and their territory is not a simple matter. It is complicated by several facts. These people had no developed national or tribal sense; affiliation was fluid. Nor did they distinguish themselves by a special name. They merely knew others called them Sage-brushers, Sage Brush Homes, or Buffalo-Eating People.

Similarly mirrored in a footnote in the 1805 Journal of LaRocque

The Shoshonees [*sic*] are a small tribe of the nation called Snake Indians, a vague denomination, which embraces at once the inhabitants of the southern parts of the Rocky Mountains and of the plains on each side (1805[1910]:72).

Other ethnohistoric accounts record a group identified as the Mountain Shoshone came to occupy a portion of the Wind River reservation on Sage Creek (Dominick 1964; Hulkrantz 1954; Shimkin 1947, 1986). Preceding the development of the Wind River Reservation in 1868 there is an idea that the Mountain Shoshone were separate of Eastern

Shoshone and occupied the alpine and subalpine environments of the Middle Rocky Mountains possibly as a form of resistance to European incursion (Scheiber and Finley 2011). This would be subsequent to seven periods of cultural change outlined for the larger Eastern Shoshone group following their emergence/or in-situ development in the region.

Demetri Shimkin (1986:309) describes seven distinct phases of history for the Eastern Shoshone in the Middle Rocky Mountain region and four of these are critical to the this discussion of interpreting ethnicity from the archaeological record: 1.) the emergence and adoption of large-scale buffalo-hunting in the region around AD 1500 that coincided with high-militaristic prowess. 2.) the acquisition of the horse and increased raiding throughout the region that coincided with more leadership and hierarchal rules from AD 1700 – 1780. 3.) A widespread period of instability and retreat westward from AD 1780 – 1825 following defeat by newly armed Blackfeet and smallpox. 4.) From AD 1825 – 1880 there was an increase in white – Shoshone alliances and a renewed sense of tribal identity under the leadership of Washakie. Shimkin (1986) illustrates a dynamic time of mobility and technological change for the Eastern Shoshone and when considered with additional historical encounters should cause researchers to question the material homogeneity of this group.

Historic Encounters

From an archaeological perspective historic encounters are used to both associate and reinforce several artifact types with the Eastern Shoshone. Most commonly these are Soapstone vessels and wooden structures. Loendorf and Stone (2006) and Nabokov and

Loendorf (2004) used historic accounts of Sheepsteater Shoshone specific to wickiups by both William Baillie-Grohman and Lord Dunraven for their designation in the Yellowstone region. While Dunraven's full account appears in their reviews William Baillie-Grohman's (1882:177) does not and suggests poor conditions for the non-hide structures:

They lived very high up on the great mountain Backbone, and their miserable dwellings, across which I frequently stumbled, prove that they constantly lived on or above Timberline ... They had no horses, and were the poorest of the poor. They subsisted, so I was informed by a half-breed, whose squaw was a daughter of this tribe, on deer and Bighorn, following the game in late autumn to the lower pasturages, They were very expert stalkers. They belonged to the great Snake Indian tribe, but had their own chief, and had nothing in common with their Plains brethren, who, born in the saddle, deem it most derogatory to walk a single unnecessary step.

It is a similar sentiment to Lord Dunraven:

Before crossing the divide we passed a few old wigwams, remains of encampments of Sheepsteaters. These were the last indications of Indians that we saw, for the natives are afraid of Geyser Basins, and do not venture into that locality at all. (DunRaven 1876:255)

The historic accounts of soapstone vessels associated with Snake groups are found throughout the Middle Rocky Mountain area from the east slope of the Bighorns to Northeast Idaho. There are two widely cited accounts. The first comes from a trade meeting with Snake Indians at Crow village somewhere between the Little Bighorn River and Bighorn Canyon by François-Antoine Larocque (1805[1910]:38) that followed the resignation of his Crow guide Spotted Horse:

I traded 8 Beavers with the Snake Indians in whose possession I saw a Kettle or Pot hewn out of a solid stone, it was about 1½ inch thick & contained about 6 or 8 quarts; it had been made with no other instrument but a piece of Iron. [*sic*]

The second often cited account (Adams 2010:25) comes from Osborne Russell near the Lamar Valley in Yellowstone (1921:31):

Here we found a few Snake Indians comprising six men, seven women, and eight or ten children who were the only inhabitants of this lonely and secluded spot. They were all neatly clothed in dressed deer and sheep skins of the best quality and seemed to be perfectly contented and happy. . . Their personal property consisted of one old butcher knife nearly worn to the back, two old shattered fusees which had long since become useless for want of ammunition, a small stone pot and about 30 dogs on which they carried their skins, clothing, provisions, etc on their hunting excursions. They were well armed with bows and arrows pointed with obsidian. [sic]

Additional accounts come from Nathaniel J. Wythe (1851:211) while en route to the northwest country between the 40th and 49th parallel probably in South Pass country stated:

I have also seen among these Indians [Snake] a stone pot, holding about two quarts, made of pure lava, and shaped much like the black-lead pot used in melting metals, and think it would stand fire to be used as a boiling-pot, but have never seen it so used, or in any other way.

The last account comes from Meriwether Lewis on Friday August 23rd 1805 near what is now Lemhi Pass (Webster and Widger 2005):

... their culinary utensils exclusive of the brass kettle before mentioned consist of pots in the form of ajar made either of earth, or of a white soft stone which becomes black and very hard by birning, and is found in the hills near the three forks of the Missouri betwen Madison's and Gallitin's rivers they have also spoons made of the Buffaloe's horn and those of the Bighorn [sic]

These historic accounts are often argued to establish the presence of the Eastern Shoshone and Mountain Shoshone in the Middle Rocky Mountain region.

Current Middle Rocky Mountain Numic Research

The most profitable line of evidence in any migration study is the mitochondrial DNA. Unfortunately these analyses have not been undertaken in the Middle Rocky Mountain but surrounding areas do frame expectations specific to the Middle Rocky Mountains. Fredrika

Kaestle and David Smith (2001) analyzed 108 Native American individuals across the Great Basin with dates spanning 650 to 9,200 years before present. Despite the large date ranges chi-square analysis indicated that the prehistoric individuals were representative of a prehistoric population. Their findings suggest there is a genetic discontinuity between ancient and more modern haplogroup frequencies (especially haplogroup D) in the Great Basin seen in the California and Great Basin clades being more closely related than either one is to the older Western Nevada clade. As Kaestle and Smith (2001:8) suggest “This outcome is consistent with a recent expansion of the Numic-speaking group into the Great Basin, leading to a replacement of the pre-Numic inhabitants.” In other words, there were two prehistoric population, one in western Nevada (thought to represent Penutian-speakers), and the other in the central Great Basin (Fremont – related to Southwest group) that were replaced by a new group with ties to California (seen in the presence of haplogroup X). Specific to the western Great Basin the mtDNA data suggest a genetically related population expanded out of California and replaced an older existing population a millennium ago. These results have received criticism (Grayson 2011:332) but further work has confirmed this was not a result of population continuity and microevolutionary mechanisms (Cabana et al. 2008) and are upheld by further mtDNA in California (Johnson and Lorenz 2006).

Because of the lack of genetic studies specific to the Numic expansion in the Middle Rocky Mountains research focuses on the emergence/in-situ development or a direct historical association. The emergence of Numic groups in the Middle Rocky Mountains is associated with a late technological shift (1000 BP). Larson and Kornfeld (1994) provided the first thorough focus on the idea of emergence (cf. Wright 1978). They characterize researchers in the Numic spread as working from a normative approach, encoding specific classes of artifacts, sites, and

subsistence as Shoshonean without testing any of them. To them, the presence of similar artifacts over a large geographical area is suggestive of a technological transition rather than any single ethnic migration. This is a similar position to Scheiber and Finley (2010:132) who argued “the presence of these new items could indicate the migration of a new group of presumably Shoshone (Central Numic) speakers from the Great Basin. This does not imply, though, that Numic speakers were not present in the mountains before 1300 – just the nature of the archaeological record changed”. But, the mtDNA of the western Great Basin are clear. A migration took place around a millennium ago making the presence of a Numic group prior to AD 1300 in the Middle Rocky Mountains (eastern Great Basin) to absorb a technological expansion untenable. So the question then is with an emergence of new technology and associated group in a period characterized as dynamic (i.e. noted influence from numerous adjacent regions and groups) is it appropriate to describe the groups that entered and those contacted by Europeans as Shoshone (Larson and Kornfeld 1994:209)?

Archaeological materials used to designate Shoshone are those associated with historical accounts, European trade goods or combination of the two. These include both artifacts and site types such as: soapstone vessels (Adams 2006, 2010, Loendorf and Stone 2006), antelope traps (O’Brein 2013), tri-notch and brownware ceramics (Newton 2010), or specific tapered bifacial knife (Larson and Kornfeld 1994). What these studies lack is thorough and thoughtful review of the complexities of the polyethnic social environment the Eastern Shoshone were enmeshed. There are undeniable accounts of certain artifact types and territory being associated with Eastern Shoshone or Snakes but these often ignore the other indigenous groups utilizing the same space or resources. The complexity of this issue is best characterized not in the Numic Spread but rather by the Ishi the Yahi man probed by Alfred Kroeber in California.

Steven Shackley (2000) analyzed the projectile points manufactured by Ishi, the Yahi man who is considered to be the last of the known Yana Indians in northern California. He found the projectile points Ishi manufactured were more consistent with those found in historic sites occupied by Wintu/Nomlaki groups than the Yahi. From these findings Shackley suggested (2000:709) “a Wintu/Nomlaki - Yahi boy learned to produce projectile points as a Wintu/Nomlaki but lived the life of a Yahi in the Lassen foothills until no more Yahi remained”. If these findings are correct it reinforces the concerns I have raised about the limitations of interpreting ethnicity under the essentialist/objectivist approaches (cf. Boyd and Richerson 2005:222 -223) specific to the Numic Spread.

DISCUSSION

A recent historiography of the Eastern Shoshone suggests that the group had been in a constant state of change since their migration from the Great Basin. Using ethnogenetic theory Hodge (2013:6) “treats societies as ‘social species’ that evolve and adapt to the exigencies of the world around them, thereby recreating themselves as distinct, autonomous ethnic groups, sometimes repeatedly”. For the Eastern Shoshone this means as they moved out of the Great Basin and adapted desert lifeways to newer ecological zones they were forced to remain cohesive while simultaneously reestablishing their identity. The ethnogenetic argument advanced by Hodge (2013:6) is something that archaeologists informed by history can test. The remainder of this article is devoted to discussing various ways Numic Spread researchers have and can continue to test historical arguments like those advanced by Hodge (2013).

Promising Work for the Future

Sinopoli (1991:64) has argued archaeologists using artifacts to argue ethnicity must consider the following:

- 1.) Context of use
- 2.) Their visibility to message receiver
- 3.) The value attributed to the goods
- 4.) Their flexibility and potential to vary in visible and distinctive ways without impairing function
- 5.) Durability of use-life

In a study of the 172 arrows collected by John Wesley Powell from Numic groups in the Great Basin Sinopoli (1991) tested 131 for the presence of stylistic variation in (1) ornamentation, (2) feathering, notches and nocks, (3) Stone tool production, (4) and variability in attributes like shaft length. Her analysis found stylistic variation on the (1) ornamentation of shaftment (the portion containing the fletching, notch and knock) in each of the three Numic groups with the closer proximity leading to shared stylistic attributes (Sinopoli 1991). When it came to the hafted stone projectile points there was no significant difference in projectile point form across the groups only in frequencies. The presence of Desert Side-Notch (DSN) points were higher in the two groups (Deep Creek Gosiute and the Kaibab) that also had higher frequencies of hard wood arrow shafts. The Moapa, however, had the highest frequencies of Cottonwood Triangular points as well as reed arrows interpreted as the more expedient arrow. Sinopoli (1991) notes the hardwood arrows are more time intensive to make but are also more durable making them the preferred arrow for large mammals. She did not report the relationship of arrow shaft wood to point style but the numbers suggest DSN points are on hardwood shafts more than they are on reed shafts. The implications being the DSN hardwood shaft combination could signify a functional arrow system seen in groups that targeted large game rather than anything explicitly ethnic.

A growing trend in archaeological analyses is to incorporate Darwinian logic in the spread of cultural traits. Dual-inheritance or cultural transmission suggests “people are predisposed to interact with others who look or sound like themselves”, and this predisposition will in turn lead to the replication of a cultural trait because it better augments successful group interactions (Boyd and Richerson 2005:213). This seems to be especially true in cases where the cultural adaptation rapidly expands, and the trait can be linked to local environmental knowledge. This in effect describes a situation wherein individuals imitate the more successful cultural trait and reaffirm that trait. This would partially account for technological spread in a migratory context, like the Numic Spread, but better accounts for the technology spread than the actual ethnic identity of the groups making the artifacts. Because of the difficulties in acquiring mtDNA material artifacts studies and in particular transmission studies offer fertile ground for testing technological relatedness, especially in additive (ceramic manufacture) over reductive processes (Schillinger et al. 2014).

Future studies specific to the Late Prehistoric materials in the Middle Rocky Mountain must include all Late Prehistoric archaeological defined cultures (Avonlea similar artifacts and residential patterns to those defined as Shoshone to include Cut-and-Fill lodges) (Frison 1988). Under which tests need to expand to include other contemporary materials (i.e. Crow, Assiniboine, Gros Ventre etc., historic accounts) and expectations for these tests must be in line specific to transmission studies. Until the work is done to better equate materials with a historical record groups ethnic labels must be removed from these materials, even those recorded in the hands of Snake or Shoshone individuals.

Kevin Jones (1994) suggested that the ‘rocks’ (i.e. material culture) cannot be equated with highly mobile hunter-gatherer ethnic groups, and that by doing so “we are reducing historic

cultures into small sets of artifactual definitions,” and effectively pigeon-holing them into what was recorded during historic colonial contact with Anglo and Spanish groups (Jones 1994:72). In a discussion of Uncompahgre pottery (a pottery style commonly associated with Ute groups) Jones (1994) effectively stated the problem of Numic expansion with these two statements. First, using the historic data as a proxy for an expansion that took place over a presumed 1500 year period denies the fluidity of ethnic groups. Second, this approach pries the unit of analysis, ethnicity, from a historical context and projects it back across a very complicated period of history/prehistory, and researchers using this approach rarely grapple with that complexity. The mobile hunter-gathering group that expanded across the Great Basin did so across other hunter-gathering and agricultural groups (i.e. Fremont and the Anasazi). It was not empty space. Until the complexity of the situation is dealt with (e.g. Y-DNA and mtDNA) studies of material culture are too coarse-grain to add anything much to this debate. Specific to the Middle Rocky Mountains the Firehole phase needs to be commonplace for all the materials outside of the Wyoming Basin often thought to represent the Shoshone including those associated with the European trade goods (Thompson and Pastor 1995).

CONCLUSION

As Ruth B. Phillips (1998:xvi) using the work of Lucy Lippard (1990:19) states, “naming, is the active tense of identity”. This is the problem with many of the approaches inherent in the Numic Spread model. The archaeologists in this debate have used ethnicity without really grappling with the concept. Certainly, by always using the term Numic it effectively codes specific ethnic groups to a linguistic phenomenon. We know there are groups of linguistically related people that spread across a basin that stretches some 200,000 square miles (Campbell

2001; Fowler and Fowler 2008; Shimkin 1947; Steward 1938). So the conclusion here is simple: ethnicity is a topic that archaeology may be ill-equipped to tackle. The ethnic studies touched on here suggest that ethnicity is highly situational and archaeology in most cases cannot handle the fine-grained temporal scale integral to many ethnic studies. However, our data are so easily bound in to temporal and geographical areas and it becomes easy to favor objectivist approaches and bound classes of artifacts to groups. The problem is we may categorize one group to the exclusion of others, thus privileging some ethnic group's identity while denying another group theirs. As archaeological work continues into the periods that dovetail known recorded indigenous contact with Europeans we need to better reflect on the ethnic labels we assign artifacts. As Larson and Kornfeld (1994) suggested, it is more appropriate, at this point to view the Numic Spread as a very successful technological spread. The review of ethnicity presented here finds archaeology to be a poor fit with the complexities inherent in most identity construction. It closes with a simple question: what do we have to gain by associating a specific suite of materials with living ethnic group?

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CHAPTER 4

PEAKS TO PLAINS:

Late Prehistoric Firehole Phase Residential Occupations in the Middle Rocky Mountains and the Wyoming Basin

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ABSTRACT

The prehistoric residential sites in the alpine and subalpine northern Wind River Range of the larger Middle Rocky Mountains physiographic province are associated with seasonal usage. The range and territory of this usage is poorly understood but the assumption is this includes the adjacent areas of the Wyoming Basin. Comparative results from excavated materials are restricted to lithic artifacts from the interior space of domestic structures at sites in the alpine and on the eastern edge of the Wyoming Basin. This analysis compares lithic procurement strategies and source materials to test the relationship between a similar site in the Wyoming Basin and the alpine of the Northern Wind River Range. The results suggest that groups were provisioning both alpine residential sites and on the edge of the eastern Wyoming Basin, indicating a broad land-use pattern during the Firehole phase.

INTRODUCTION

The discovery of large residential sites with domestic architecture in the northern Wind Range has focused research into the prehistoric use of the alpine and subalpine mid-latitude montane environments (Adams 2010; Koenig 2010; Losey 2013; Morgan et al 2012; Stirn 2014). The current interpretation of alpine residential sites is they are seasonal-use camps associated primarily with whitebark pine procurement and secondarily with the hunting of bighorn sheep (Adams 2010; Stirn 2014). These interpretations come from one residential site, the High Rise Village (Henceforth HRV) the age of which is argued either to represent a Uinta phase use of alpine during a stable climatic period (Losey 2013); or as part of a long-standing procurement strategy focused on seed-bearing pines by Numic speaking Shoshonean groups (Adams 2010; Stirn 2014). Regardless of the discrepancies in interpretation of site-use/formation and timing there is general agreement that this and other residential locations in the alpine of the Northern Wind River Range are representative of seasonal use. Unfortunately, the alpine sites lack any of the traditional materials used to associate seasonality with occupation. Absent a good faunal or floral record with which to assess seasonality, each residential sites does have a large lithic assemblage (Koenig 2010). The excavation of several domestic structures at the High Rise Village found these lithic assemblages are particular to the interior space of residential features. A similar pattern was suggested and then confirmed for the interior residential structures in the Wyoming Basin at the Shirley Basin Lodge site (Henceforth SBL) (Figure 1).

The domestic architecture at HRV and other alpine residential locations is broadly defined as cut-and-fill which encompasses a range of variation from simple cleared out areas to those with terraced pads and more formal coursed rock or wood walls (Adams 2010; Morgan et al 2012). Corollaries for these feature types during the Firehole phase are uncommon but not

absent in lower adjacent basins (Adams 1994; Zeimens 1975). This is likely due to a change of domestic architecture in the context of mobility or seasonal variables (Kelly 1983; 1992).

However, it also possible that the few lowland sites with the similar investment in architecture represent more substantial occupations associated with both a stable and broadening mobility/subsistence that included alpine and basin resources (Bliege Bird and Bird 2005). With no seasonally specific data the current analysis focuses on the lithic procurement and associated behavior interpreted from lithic assemblages excavated from a similar domestic feature in the Wyoming Basin at the SBL and from the alpine HRV site.

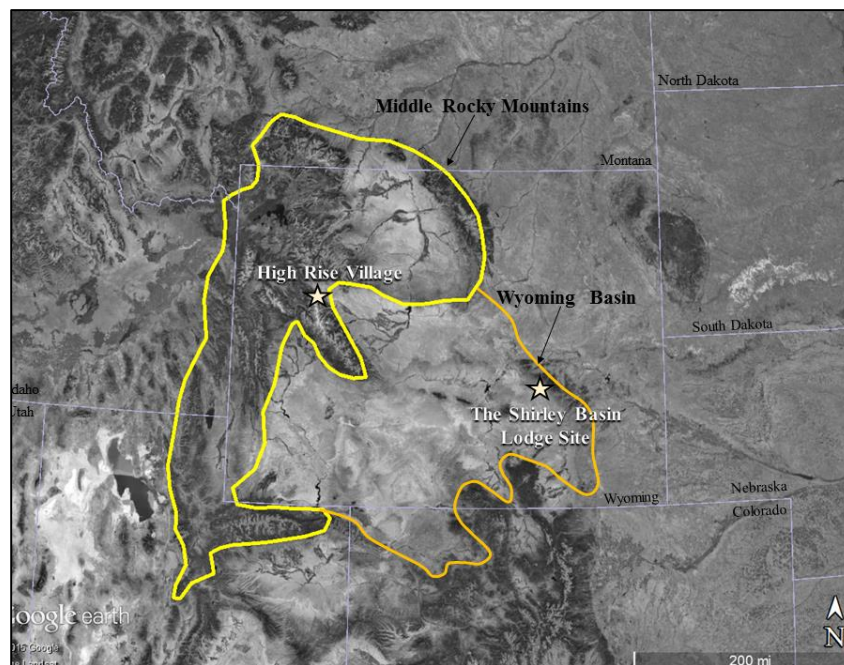


Figure 1. Physiographic Provinces in relation to site location.

Temporal context

The Firehole phase refers to a period post 700 cal BP in the Wyoming Basin characterized by high degrees of mobility and the introduction of new technologies to include DSN-series projectile points and a new form of ceramic vessel (Intermountain pottery) (Thompson and

Pastor 1995). This is argued to coincide with the incursion of Numic speaking Shoshonean groups into the region (Thompson and Pastor 1995). The term Firehole Phase is preferred here because the pervasive use of the term Shoshone has created an overreliance on the historic record to describe the entire Late Prehistoric period. A similar ethnographical and historic bias has been identified in the Late Prehistoric period of the central Great Plains where it is argued that the historic and ethnographic records were used to create specific analogies with the archaeological record that led to “tautological and static interpretations” (Roper 2007:786). Donna Roper (2007) further argued the overreliance led to a situation where historic sites were adequately interpreted but the variation inherent in the earlier sites was glossed over because the persistent use of the historic record.

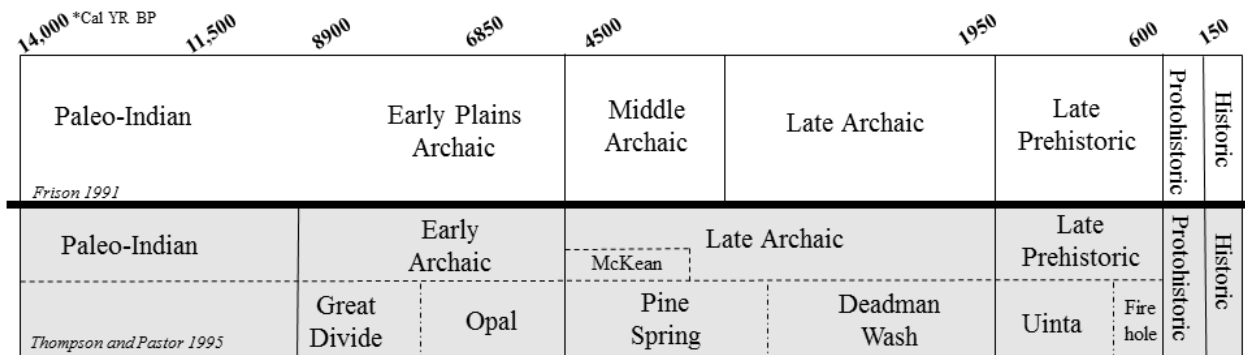


Figure 2. Competing chronologies used for the Middle Rocky Mountain and adjacent Wyoming Basin (adapted from Kornfeld et al. 2010).

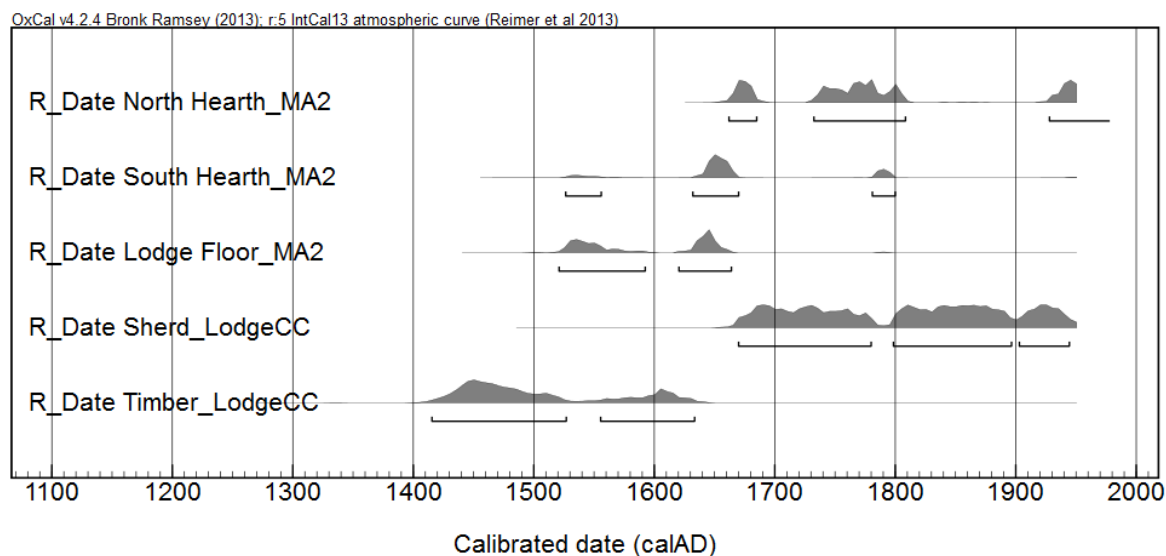


Figure 3. Individual Radiocarbon dates for the Shirley Basin Lodge site (MA2) and the High Rise Village (Lodge CC).

Seasonal mobility

There is not a rich ethnohistorical record for Middle Rocky Mountains or the Wyoming Basin. The best account comes from the Eastern Shoshone and only offer an idealized historic mobility pattern. Demitri Shimkin (1947:279) characterizes this cycle and associated subsistence practices from the years AD1825 – 1875 for the Eastern Shoshone (Figure 4). However if this proposed cycle is broken into periods of residential versus logistical mobility following definitions of Kelly (1983:278): residential mobility are movements of all members of a camp from one location to another. Logistical mobility are movements of individuals or small groups from a residential location. The historic Eastern Shoshone may have practiced 29 residential moves that covered an area of 49,000 square miles (111,000 square kilometers). With portions of a typical annual round defined under both high and low residential mobility patterns (*sensu* Binford 1980; Kelly 1983).

	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEPT	OCT	NOV	DEC
LOCALITY												
SOCIAL GROUPING												
PRINCIPAL FOOD (TOP to BOTTOM)												
OTHER ACTIVITIES												

Figure 4. Proposed seasonal round for the Eastern Shoshone ca. 1825 – 1875. Adapted from Demetri B. Shimkin (1947:279).

High Residential Mobility
45.5 days Wind River Valley (bands) 39.5 days Black Fork area (family bands) <u>46 days Absaroka Mtn Foothills (band)</u> = 133.5 (with weekly moves ca. 20 moves)
Moderate Residential Mobility
30 days Wind River Range (tribe) 35 days in Wind River Valley (tribe) <u>45 days in Wind River valley (tribe and friends)</u> = 110 (with bi-weekly moves ca. 6 moves)
Low Residential Mobility
42 in Big Horn River Valley (Residential Camp) 61 days in Fort Bridger (Residential Camp) <u>21 days in Yellowstone River (Residential camp)</u> = 121.5 (3 Residential moves)

Figure 5. Adapted from Demetri B. Shimkin (1947:279) periods of high and low residential mobility as defined by (Kelly 1983)

The settlement patterns of the Eastern Shoshone were linked to the locations of utilized resources suggesting Shoshone moved to the resource. The patterns were reportedly different from year to year depending on the availability of resources and pre-reservation Shoshone reportedly stayed west of the Wind River Range whereas horse-era Eastern Shoshone moved east of the Wind River Range. While this example is idealized, Shimkin's (1947) suggested seasonal round offers a pattern of mobility for prehistoric groups that utilized the Middle Rocky Mountains and areas east of the Wind River Range. These data are specific to both residential and logistical movement and do help frame expectations for mid-latitude montane groups and associated subsistence practices.

Given the available historic data the pre-reservation/reservation period Eastern Shoshone practice 29 residential moves per annual cycle. They have three periods where they coalesced as a large group and decreased their mobility. During these three periods logistical groups were sent out, mainly to procure bison. The longest period of low residential mobility occurred during an intertribal rendezvous where groups were self-sustained and sent out on occasional logistical foraging camps. High residential mobility followed periods of low residential mobility where small bands 'mapped onto resources' and moved accordingly (Binford 1980:9). This idealized seasonal round does not by itself explain the Firehole Phase occupations presented here but offers a framework to develop mobility expectations. Specifically do the SBL and HRV sites both correlate to a situation wherein groups decreased residential mobility as part of a similar mobility strategy as proposed by Shimkin (1947) for the Eastern Shoshone? To assess this the most abundant comparable material between each location, the lithic artifacts was analyzed.

LITHIC ANALYSIS

The most abundant materials found at both the HRV and SBL sites from within excavated domestic structures are lithic artifacts. The comparable lithic assemblages provide materials from each site that are sensitive to land-use patterns associated with residential mobility, procurement behavior, and conveyance patterns. Furthermore, because each site seems to represent both a long (ca. 2 months) and single occupation the use and discard of lithic materials are comparable between them and not affected by multiple uses (Sullivan and Rozen 1985). The expectation is for the lithic assemblages from each site to be similarly affected by the length of occupations but the degree to which environmental variability between each site effects both the toolkit and debitage is the purpose of this study.

There are issues of replicability in debitage analyses that can affect interpretations but categories like lithic raw material and size are easily replicable and do offer insight into residential and logistic mobility (Ostahowski and Kelly 2014). In general, a decrease in residential mobility is associated with a longer occupation and is expected to result in a high tool diversity and heavy reliance on local over non-local sources due to close proximity (Ostahowski and Kelly 2014). Whereas logistical mobility is thought to have a lower and more specific tool diversity to include multifunctional tools like bifaces, with lower maintenance and associated debitage of nonlocal materials. These predicted outcomes are heavily influenced by proximity to lithic sources and the associated procurement strategies as well as the role of individuals (Kelly 1992).

Gould (1978) and Binford (1979) described different lithic procurement strategies known as embedded and direct procurement. Direct procurement is defined as those instances when groups directly move to a lithic resource to procure that resource, whereas indirect procurement

occurs when a group obtains lithic material as part of a larger subsistence strategy. In general, those sites with high quantities of local lithic in close proximity are interpreted as being consistent with direct procurement events and those with sparse or poor lithic resources as indirect (Duke and Steele 2009). However procurement strategies are also affected by both environmental, social, and demographic factors and patterns of procurement can change on a given site location regardless of proximity to resources (Duke and Steele 2009; Ostahowski and Kelly 2014).

In sites where multiple occupations are assumed, inferring behavior and procurement strategy is difficult because of time-averaging in deposits (Brantingham 2003). This is not the case for cultural deposits associated with a single occupation. The materials from single occupation domestic structures provide an opportunity to use an analysis that, “reflects what did or did not happen at a site” at a given point in time (Prasciunas 2014:52). Using an aggregate nodule analysis Prasciunas (2014) outlined expectations for nodule types specific to both single and multiple items (Table 1). The appeal of this approach is that behavioral corollaries can be made between the two residential sites through the constructed analytical nodules. In the context of two signal occupation residential structure this provides an opportunity to compare behavioral patterns specific to procurement and site-use.

Table 1. Adapted from Prasciunas (2014:54), nodule types, associated behavior and implications for Technological organization.

<i>Content</i>	Single Item Nodule (SIN)		Multiple Item Nodule (MIN)		
	Flake	Tool	Debitage	Debitage and tools	Tools Only
<i>Behavior</i>	Off-site manufacture and on-site resharpening; resharpened item removed	Off-site manufacture and on-site discard with no site maintenance	On-site tool production and/or maintenance	On-site tool production, use, and discard	On-site discard of tools manufactured off-site
<i>Implications for Technological Organization</i>	Tool Curation and maintenance	Tool curation without maintenance	Tool curation and/or maintenance	Expedient tool manufacture and use	Tool curation without maintenance

MANA Analysis

Minimum Analytical Nodule Analysis (MANA) involves classifying lithic materials by their macroscopic characteristics: raw material type, color, texture, inclusions, cortex color, luster and any other distinguishing characteristic. Koenig (2010:A-2) categorized “lithic material types by color, using the Munsell rock-color Chart (USGS 1995) [and further noting] translucency, luster and presence or absence of inclusions.” During this process it was noted that “several of the categories...initially diagnosed as distinct were later observed co-mingling in a single specimen, likely from a nearby quarry” (Koenig 2010:A-2). His results found 27 distinct lithic types within a single residential structure known as Lodge S at the HRV site. The definitions provided by Koenig (2010) are used to keep the result between HRV and SBL consistent. The idea is that each of the flakes came off of the same piece of the raw material, representing individual flintknapping events (Prasciunas 2015:52). In this sense, it is assumed without actually refitting that all the flakes of distinct nodule still came from the same parent source.

Grade sizing adds a descriptive variable to a MANA analysis to determine raw material procurement, use, and discard (Koenig 2010). Each size grade can be used to understand the production events associated with the occupational history and this is especially true in analyses focused on single occupational episodes like is proposed for HRV and SBL. The larger grades like G – G1 represent parent nodules or large multifunctional tools, usually the tool corresponding to proceeding grade sized came off. Grades G2-G3 represent manufacturing flakes, possibly thinking flakes off of the core to make a tool. Grades G4-G5 represent the maintenance flakes or edge modification (Table 2). This represents tool maintenance. With these expectations of the grade sizes we can test to see, which types of raw materials procurement and use strategies were occurring at the lodge sites and if they are similar to each other. The expectations are that both lodge sites were conducting on/near site procurement, on-site manufacture, on-site use (or rejection), on-site discard. This would mean that all grade stages would be represented in the local lithic assemblages.

Table 2. Size grade criteria modified from (Koenig 2010).

SQUARE OPENING SIZE		DIAGONAL OPENING SIZE		SIZE GRADE
mm	Inches	mm	inches	
63.5	2.5	89.80	3.54	G
50.8	2	71.80	2.83	G0
25.4	1	35.92	1.41	G1
11.63	0.458	16.45	0.648	G2
5.72	0.225	8.08	0.318	G3
2.74	0.108	3.88	0.153	G4
<i>Materials Passing Through G4 Screen</i>				G5

The expectation is for there to be higher quantities of locally available lithic materials at each residential site over non-local materials. Local raw materials should be even higher at SBL because the site is on a lithic raw material source whereas HRV is 5 miles from a source of quality tool stone. There should be more bifacial reduction flakes at SBL than HRV because the

latter is focused on bison hunting and the former white bark pine extraction. Tool maintenance is expected to skew towards butchering tools at SBL and general maintenance at HRV. The overall size of individual pieces of debitage should also be larger at SBL over HRV because of the transport costs of cores.

Classification Methods and Definitions

Strict definitions of lithic units are fundamental to replicable results (Andrefksy 2005). The lithic definitions provided here are both typological and descriptive (size-grading). As Andrefsky (2005) suggests the appeal of any typological approach in debitage analysis is the corollary with the behavioral event that created the debitage. In addition, the proposed aggregate analysis examines the raw materials to suggest logic of technological organization pertaining primarily to procurement and discard.

Stone Tool Classification

The stone tools found in each residential feature help frame behavioral activities specific to manufacture and curation of tool use and transport (Hall 1998; Thieme 1991). The categorization of each formal tool is as follows: projectile points include all those portions (tip, midsection, base, ear) of any artifact consistent with the size and shape of a projectile point; bifaces are those bifacial worked tool that fall outside of those defined as projectile points; cores are artifacts that have had material removed to supply material to other tools. Utilized flakes are those flakes where the lateral margins indicate evidence of use (grinding, abrasions) but are not formally modified. Retouched flakes are those that have received formal modification to a lateral

margin. Drills are tools that have received formal modification to produce a point for perforation.

Flake Classification

Several discrete debitage categories exist that relate directly to behavioral events that provide insight into the activities that took place within the residential structure. In conjunction with an analytical nodule analysis the comparative units correlate behavioral activities at the two residential locations. This is also done to provide firm resolution to the nodule types especially Type 12 (Table 2) as “multiple pieces of debitage” is vague without defining what those flakes represent. The flake categories include: cortical, complete, shatter, and fragment (Andreksy 2005:94-95). Platform morphology include: unmodified, ground, bifacial reduction. Unmodified platforms are smooth flat surfaces usually the result of non-bifacial tool production (Andrefsky 2005). Flake platforms with multiple flake scars also called biface thinning flakes are defined by a faceted (lipped) striking platform that contains a least a portion of the parent bifacial tool (that extends to a small part of the dorsal surface) (Andrefsky 2005:123; Frison 1968). Flakes with platforms that contain multiple flakes scars but also abrading, polish, or micro-scarring are defined as an abraded/ground platforms (Andrefsky 2005). Flakes without these platform attributes fall into the remaining two categories: shatter and flake fragments.

Shatter includes non-flake debitage and are defined as those materials that do not have a recognizable dorsal or ventral surface that are usually, but not always, blocky in shape. Flake fragments are those pieces of debitage without recognizable platforms but have obvious dorsal and ventral surfaces. For purposes of this study I characterize flakes with recognizable platforms under one of the previously described categories and not as flake fragments. The proximal, medial, and distal portions of flakes are characterized as flake fragments. This typological

approach to debitage is used to frame expectations for stone tool maintenance at both residential locations.

Proximity to Lithic Sources

Kelly (1995:111 - 160) categorized any tool source located 0-15 km away from a site as local, non-local are those source 15-75 km distance from the site location and anything over 75 km from the site location is exotic (Kelly 1995:111-160). Both HRV and SBL sites are on or very close to high-quality lithic sources. The close proximity to these resources will condition the tool assemblage at both of these sites on some level (Andrefsky 2005). However both sites do contain transported materials from exotic sources. In the context of mobile groups the transportation of lithic material and in particular what tool form they are carried from source to discard is a highly studied topic (Kelly 1988, Prasciunas 2007). Although an in-depth lithic analysis has not been done, the domestic structure known as Lodge S indicates a reliance on local resources carried in as nearly complete tool forms (Koenig 2010). But there are also multiple large bifacial cores carried from both nonlocal and exotic sources (Koenig 2010).

Lithic Sources

Each site location is near a primary lithic source. For High Rise Village it is the Arrow Mountain chert quarry located 5.7 kilometers southeast of site with multiple quarry pits atop a broad low lying mountain ridge of both Carboniferous Mississippian period Madison Limestone and fossiliferous talus debris of probable Cambrian aged Whitewood Dolomite formation (Love and Christiansen 1985). The local chert in these quarries contain fossiliferous and brecciated

inclusions and cortical surfaces consistent with the parent the local Madison Limestone formation.

The Shirley Basin Lodge site is situated both on and near multiple facies of Lower Cretaceous period sandstone that grades into tool-stone grade quartzite (Love and Christiansen 1985). The orthoquartzite available on the site grades from gray to white whereas off-site but local facies grade from brown to dark purple.

Non-local Sources

In general Mississippian aged cherts are fairly ubiquitous across much of the Middle Rocky Mountains (Miller 2010). Outside of the identification of variation specific to the local Arrow Mountain chert quarry near HRV it is difficult to attribute diagnostics attribute specific to any one source. Therefore, any materials not meeting the Arrow Mountain criteria were placed into non-local unspecified cherts. This extends to the SBL site that is near high-grade Mississippian aged cherts but none occur on or within 15 km of the site location.

Exotic Sources.

There are two forms of exotic materials considered in this analysis that include penecontemporaneous cherts of the Green River Formation identified through distinctive banding (tiger chert) and grade to a homogenous dark brown. The material is common from the extreme southwestern portion of Wyoming (Miller 2010). The primary deposit of this lithic source is located some 275 km from HRV and 369 km from the SBL site. The second exotic material includes extrusive volcanic deposits or obsidian. The materials are traceable and X-ray

fluorescence (XRF) done on all those collected materials (surface and non-surface) from SBL site indicate, Obsidian Cliff (n=21), Teton Pass (n=6) and Polvadera Peak in New Mexico (n=1) were brought to the site. These data are not available for the HRV site although is present.

RESULTS

The discovery of large residential sites with domestic architecture in the northern Wind Range has focused research into the prehistoric use of the alpine and subalpine mid-latitude montane environments (Adams 2010; Koenig 2010; Losey 2013; Morgan et al 2012; Stirn 2014). The current interpretation of alpine residential sites is they are seasonal-use camps associated primarily with whitebark pine procurement and secondarily with the hunting of bighorn sheep. A total of 3,377 lithic artifacts were analyzed from Lodge CC at the High Rise Village site and 613 lithic artifacts from Lodge MA2 at the Shirley Basin Lodge site (combined total n = 3,990). These results are taken from an excavated 21 m² from Lodge CC with the majority of all lithic artifacts coming from the 9 m² that correspond to the interior of the Lodge CC structure. Lithic artifacts from Lodge MA2 are from a total of 3.5 m² specific only to the interior of the domestic structure. If the distribution of lithic artifacts is averaged by individual test units Lodge CC contains nearly twice the amount of artifacts per m² as Lodge MA2 (375.2 per m² compared to 175.1 m²). Despite the difference in amount of material there is a similar signature in lithic frequency specific to both grade size and material types used and radiocarbon dates indicate a single occupation for each structure. A Pearson chi-squared analyses indicate that both assemblages have strong relationship between material type and size grade as well as between formal artifact and material type (p>.000).

Lodge CC – HRV

A total of 41 discrete nodules exist in Lodge CC that correspond to 3,018 local, 82 non-local and 277 exotic lithic artifacts (Table 1).

Table 3.) Size graded materials from Lodge CC (orange: local, yellow: non-local, and gray: exotic).

Material	G	G0	G1	G2	G3	G4	G5	Total
CC1	1	0	4	29	41	174	29	278
CC2	0	0	5	30	160	310	46	551
CC3	0	0	0	0	0	1	1	2
CC4	0	1	3	0	0	0	0	4
CC5	0	0	1	21	60	247	48	377
CC6	0	1	1	1	12	6	3	24
CC7	0	0	1	11	33	49	10	104
CC8	0	0	2	46	138	253	43	482
CC9	0	2	0	2	2	11	2	19
CC10	0	0	4	15	7	12	1	39
CC11	0	0	2	53	98	100	9	262
CC12	0	0	2	25	8	54	5	94
CC13	0	0	2	1	6	6	0	15
CC14	0	0	4	25	98	197	31	355
CC15	0	0	1	3	0	8	0	12
CC16	0	0	1	10	7	28	4	50
CC17	0	0	4	1	1	4	0	10
CC18	0	0	3	17	15	5	0	40
CC19	0	0	2	1	0	6	1	10
CC20	0	0	3	10	32	210	20	275
CC21	0	0	1	1	0	0	0	2
CC22	0	0	1	0	0	0	0	1
CC23	0	0	0	1	0	0	0	1
CC24	0	0	4	10	9	25	6	54
CC25	0	0	0	1	0	0	0	1
CC26	0	0	0	1	0	0	0	1
CC27	0	0	1	0	0	3	0	4
CC28	0	0	0	0	0	1	0	1
CC29	0	0	1	0	4	60	9	74
CC30	0	0	1	3	0	0	0	4
CC31	0	0	1	12	33	40	3	89
CC32	0	0	4	1	19	66	13	103
CC33	0	0	1	5	0	0	0	6
CC34	0	0	0	0	1	0	0	1
CC35	0	0	0	1	0	11	1	13
CC36	0	0	1	1	0	0	0	2
CC37	0	0	2	0	0	0	0	2
CC38	0	0	0	0	1	0	0	1
CC39	0	0	0	0	1	0	0	1
CC40	0	0	0	9	3	0	0	12
CC41	0	0	0	1	0	0	0	1
Total	1	4	63	348	789	1887	285	3377

Local materials

The majority of the nodules in the HRV assemblage are comprised of local Madison formation cherts. (32 of the 41 nodules or 78 percent of the total assemblage). This is likely due to the close proximity of the chert quarry to the HRV site. As a general trend there is the complete reduction sequences that began with offsite procurement and progressed through bifacial tool production. Following Prasciunas (2014:54) this indicates expedient tool manufacture and use was a primary focus of residents in Lodge CC at HRV. The identification of local nodules was simple because the parent core or tool was located within the edge of the domestic structure wall.

Non-local materials

Those materials defined as non-local include cherts inconsistent with nodules that included both debitage and core/bifacial tool. These comprise just 2.4 percent of the overall assemblage and account for more single nodules (SIN) than any other materials type. This pattern is consistent with off-site manufacture and onsite tool storage. The single nodules (SIN) are large endscrapers that were not maintained.

Exotic materials

Exotic materials in lodge CC accounts for 12.2 percent of the overall assemblage and include two single nodules (SIN) endscrapers of Green River Basin chert deposited on-site manufactured off-site manufactured. The remainder of the exotic material is obsidian (MIN) that

includes cores, debitage and projectile points. It is uncertain if projectile points and cores are the same source as the debitage and if each should represent a different nodule. The size of the debitage are exclusive to a tool maintenance episode. Until these materials are sources they have been placed together.

Lodge MA2 – SBL

A total of 30 discrete material types the total amount of materials in the assemblage is 612. The total amount of local materials equal 474, and non-local materials equal 138 (Table 3).

Table 4.) Size graded materials from Lodge MA2 (orange: local, yellow: non-local, and gray: exotic).

Material	G	G0	G1	G2	G3	G4	G5	Total
T1	4	1	9	23	31	36	1	105
T2	2	0	7	15	18	56	0	98
T3	0	0	0	0	0	1	0	1
T4	0	0	0	0	3	3	0	6
T5	0	0	0	3	5	21	0	29
T6	0	0	2	5	17	57	1	82
T7	0	0	5	18	43	67	1	134
T8	0	0	0	1	1	1	0	3
T9	0	0	0	0	6	7	0	13
T10	0	0	0	1	8	17	0	26
T11	0	0	1	1	7	14	0	23
T12	0	0	0	0	2	17	0	19
T13	0	0	0	2	0	2	0	4
T14	0	0	0	1	0	0	0	1
T15	0	0	0	1	0	6	0	7
T16	0	0	0	1	2	1	0	4
T17	0	0	0	0	2	6	1	9
T18	0	0	2	1	3	0	0	6
T19	0	0	0	1	1	1	0	3
T20	0	1	0	0	0	0	0	1
T21	0	0	1	0	1	0	0	2
T22	0	0	0	1	7	10	0	18
T23	0	0	0	1	0	0	0	1
T24	0	0	0	0	0	0	0	0
T25	0	0	0	0	2	1	0	3
T26	0	0	0	0	1	2	0	3
T27	0	0	0	0	2	4	0	6
T28	0	0	0	1	0	0	0	1
T29	0	0	0	0	2	0	1	3
T30	0	0	0	1	0	0	0	1
Total	6	2	27	78	164	330	5	612

Local materials

There is almost equal distribution between local and non-local nodules (n= 13 local and (n = 16) in the assemblage of Lodge MA2. These local nodules are comprised of Cloverly formation orthoquartzites and account for 77.4 percent of the overall assemblage. This is likely do to the close proximity of quartzite quarries to the SBL site. As a general trend there is the complete reduction sequences that began with offsite procurement and progressed through bifacial tool production. Following Prasciunas (2014:54) and like Lodge CC at HRV this indicates expedient tool manufacture and use was a primary focus of residents within Lodge MA2 at the SBL site.

Non-local materials

Those materials defined as non-local include Mississippian cherts that are available in the Shirley Basin proper but not within a 15 km radius of the site. These materials account for 22.5 percent of the assemblage but are not larger than the G1 category which suggest maintenance of non-local chert tools was also undertaken in the structure.

Exotic materials

The exotic material is restricted to a single piece of obsidian that was sourced to Obsidian Cliff in Yellowstone. Additional materials not included in this analysis but applicable to the exotics are several pieces of metal within the structure of MA2.

DISCUSSION

The results specific indicate that behavior in both of the structures was primarily focused on off-site procurement of local lithic sources. Lodge CC indicates a nearly complete reduction sequence of the materials to include nearly finished and thinned bifacial cutting tools of local material. Both these materials and large complete endscrapers were left in the wall of Lodge CC which suggests they did not become a part of a mobile toolkit. Furthermore, lacking a refit analysis of this structure it seems there were no manufactured tools of local materials that left the domestic structure. There is some tool maintenance associated with obsidian but there is also a point preform and two cores suggesting the maintained tools never left the structure and were also placed in the wall. Although less formal Lodge MA2 also indicates a similar pattern of use with large local tool used to make expedient tools and then left in the walls of the domestic structure (Table 5).

Table 5.) Tools located on the interior of a domestic structure at SBL and HRV.

	Biface	PP	Core	Drill	End-scraper	Retouched Flake	Utilized Flake	TOTAL
<i>Lodge CC</i>	46	10	10	1	8	10	80	165
<i>Lodge MA2</i>	4	3	2	0	1	1	11	23

This pattern is consistent with what Barton and Riel-Savatore (2014:8) using the work of Kuhn (1992; 1995) define as place provisioning. “Provisioning places refers to stockpiling lithic material at locales for future use. While there is a limit to the amount of stone an individual on foot can carry - especially if s/he also must carry other objects of technological and/or symbolic value, food and/or water, infants, etc.-there is no such limit to the amount of lithic material that can be stockpiled at a place” (Barton and Riel-Salvatore 2014:8). It is a pattern of lithic provisioning associated with both stable and predictable subsistence resources (Clarkson 2008). While this is not proof of a broad-scale landuse pattern like that outlined by Shimkin (1947) for

the Eastern Shoshone, it does suggest the possibility that these residential sites were associated with a broad and stable land use pattern of Firehole Phase age that incorporated both alpine and basin resources.

CONCLUSION

The discovery of large residential sites with domestic architecture in the northern Wind River Range is not exclusive to the alpine and subalpine (Adams 2010; Koenig 2010; Losey 2013; Morgan et al 2012; Stirn 2014). The specific duration and seasonal scheduling of both of these residential sites is still open for interpretation. The similarity in lithic procurement as well as the investment in architecture still may represent more substantial occupations associated with both a stable and broadening mobility/subsistence that included alpine and basin resources (Bliege Bird and Bird 2005). The inclusion of historical documentation for the Eastern Shoshone provides a testable schedule for this use (Shimkin 1947) However, lacking seasonally specific data the current analysis focused on the lithic procurement and associated behavior interpreted from lithic assemblages excavated from a similar domestic feature in the Wyoming Basin at the SBL and from the alpine HRV site.

Lodge CC at HRV indicates there was the complete reduction of local materials to produce tools consistent with cutting and butchering. The non-local materials are primarily obsidian evidenced by two spent obsidian cores, 6 obsidian point fragments and a total of 238 of the 268 flakes of obsidian smaller than one centimeter in length. This is evidence that a Firehole Phase group moved to the mountains with a portion of a pre-made toolkit and then left that kit in the joints of their structure. The eight non-local endscrapers with an average length of 5.9 cm have no associated debitage material and two are specific to Green River Basin lithic sources. This kit looks consistent with those Kornfeld (2015) has described for the production of clothing.

A similar pattern is seen at Lodge MA-2 at the SBL but with more expedient type of tool placed in the structure wall. This suggests actively planned to move to the eastern Wyoming Basin and the alpine of the northern Wind River Range and future work will unravel if this is part of a broad seasonal land-use pattern of the Firehole Phase.

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CHAPTER 5

ARTICLE SUMMARY AND DISSERTATION CONCLUSIONS

The combined three articles were prepared for professional publications as a result of a broad research program that at first focused on a single alpine residential site, the High Rise Village, and then expanded to additional alpine drainages, and adjacent basins. There are multiple directions with which to take these alpine data, and future research is warranted, but the discovery of large Late Prehistoric residential sites and issues raised with artifactual and occupational history became the focus of the publications and subsequently this dissertation. The conclusions of the three articles focus a future research agenda and outline contributions to the field of anthropology.

ARTICLE 1

BARRIER OR BACKBONE

From roughly 2006 to 2011 we have surface surveyed approximately 5100 acres in four separate drainage systems of the northern Wind River Range. Over these five years of survey work in our crews have identified a total of 76 archaeological sites across four separate survey areas in alpine and subalpine ecosystems. Site types range from simple lithic scatters to more complex residential sites with multiple domestic features. The general occupational history suggested through surface diagnostics shows a sporadic Paleo-Indian use with a noted and steady increase in use beginning from the mid-Holocene through to historic contact. However, without any real radiocarbon data to back these surface diagnostic trends up they are considered extremely limited and are evident of the need to better understand the diachronic use of the alpine environment through a focused research program. Such a program has begun at residential locations with domestic architecture and the article covered the problematic dating

issues relative to surface diagnostics and sought to refocus the conversation of alpine use on those materials associated with the Firehole Phase. This includes proposing a reduction sequence for soapstone vessels and calling for more direct dating of these vessels.

The article is among the first response to a challenge put forth by Great Basin researchers to their colleagues in the Middle Rocky Mountains to be more theoretical in their interpretations. To do this the broad phases identified in the Wyoming Basin and associated adaptive shifts were used to frame the survey and excavation results. (Losey 2013; Morgan et al. 2012; Metcalf and McDonald 2012). Materials from discovered surface scatters identified every phase in the Wyoming Basin are also present in the alpine ecosystem. As in the Wyoming Basin, a Northwest Plains influence may very well be acting on the mountains, and sustained research is needed to see if this pattern holds for the northern Wind River Range. Discovery of soapstone bowls, manufactured through a distinct reduction sequence, in both upland and lowland environments is evidence of utilization of a mountain specific resource. Dating of both soapstone bowls and bowl preforms is important to further clarify if these artifacts are Firehole Phase diagnostics or if their use extends back to the Uinta Phase. Currently, lithic artifacts, including soapstone bowls are strong indicators of transhumant use in Middle Rocky Mountains (Adams 2006, 2010). The temporal depth of transhumant use of uplands is a matter that future research will address especially as alpine research becomes common. The imperative of alpine research is obvious especially as the effects of modern climate change alter montane environments and offer new challenges and opportunities (such as melting ice patch investigations) to mountain specific archaeological resources (Todd 2015).

ARTICLE 2

THE BASIN AND THE SOWN

This article examines the association of the Eastern/Mountain Shoshone with a suite of material objects that co-occur within territory ethnohistorians recorded as historically occupied by these groups in the Middle Rocky Mountains (Shimkin 1947, 1986; Lowie 1909, 1924; Murphy and Murphy 1960). The materials are both coeval with European goods and predate by more than half a millennium. In the larger migratory context known as the Numic Spread the Eastern/Mountain Shoshone represent the second to the last stop of a proposed eastern migration that began in Death Valley, California (The Comanche being the last to split off the larger Numic group (Adams 2010; Davis 1975; Dominick 1964; Eakin 2005; Frison 1971; Holmer 1994; Husted and Edgar 2002; Janetski 1994; Larson and Kornfeld 1994; Nabokov and Loendorf 2004; Newton 2011; Scheiber and Finley 2010, 2011; Spath 1988; Thompson and Pastor 1995). There are two issues associated with cultural material argued to represent the Eastern/Mountain Shoshone that were untangled. The first issue was the historical accounts of specific artifacts with these groups, the co-occurrence of those materials within a larger suite of cultural materials and the consistent occurrence of all these cultural materials within territory recorded at historic contact. The second was the proposed maintenance of this same suite of material from an emergence point (via a population migration or in-situ development) to historical contact. Each issue relies on a predefined notion of ethnicity by the researcher and these issues were covered in a broader review of anthropological and archaeological studies concerned with historical and modern approaches. This review provides a context for defining archaeological interpretations of Shoshonean groups in the Middle Rocky Mountains both in the context of the larger Numic Spread and at a historical local level (i.e. Middle Rocky Mountains).

This chapter suggests archaeologists of the Middle Rocky Mountains have used ethnicity without really grappling with the complexity of the concept (the exception is Larson and Kornfeld 1994). Certainly, by always using the term Numic family with those materials outside a historic context it effectively codes specific ethnic groups to a linguistic phenomenon. It is an interesting problem because researchers know by historic contact groups of linguistically related people had spread across a basin that stretches some 200,000 square miles (Campbell 2001; Fowler and Fowler 2008; Shimkin 1947; Steward 1938). The conclusion is simple: ethnicity is a topic that archaeology may be ill-equipped to tackle. The ethnic studies suggest ethnicity is highly situational and archaeology in most cases cannot handle the fine-grained temporal scale integral to these types of analysis, even with a historical record. However, our data are so easily bound in to temporal and geographical areas it becomes easy to choose the most parsimonious explanation - bound classes of artifacts = specific groups. The problem is we categorize one group to the exclusion of others, thus privileging some ethnic group's identity while denying another group theirs. As archaeological work continues into the periods that dovetail known recorded indigenous contact with Europeans we need to better reflect on the ethnic labels we assign artifacts. Currently like Larson and Kornfeld suggested (1994) it might be more appropriate to view the Numic Spread and the materials that became associated with the Eastern Shoshone as nothing more than a successful technological spread. This article finds ethnicity as it is used in archaeology to be a poor fit with the complexities inherent in most ethnic and identity construction analyses.

ARTICLE 3

PEAKS TO PLAINS

The article address the lithic procurement and artifact assemblages present within structures at HRV and a site in the Wyoming Basin both with architecture broadly defined as cut-and-fill style construction (Adams 2010; Morgan et al 2012). Corollaries for these feature types during the Firehole phase are uncommon but not absent in lower adjacent basins (Adams 1994; Zeimens 1975). This is either due to a change of domestic architecture in the context of mobility or seasonal variables (Kelly 1983; 1992). However it also possible that the few lowland sites with the investment in architecture represent more substantial occupations associated with both a stable and broadening mobility/subsistence that included alpine and basin resources (Bliege Bird and Bird 2005). However, lacking seasonally specific data the article could only focus on the lithic procurement and associated behavior interpreted from lithic assemblages excavated from a similar domestic feature in the Wyoming Basin at the SBL and from the alpine HRV site. The results indicate that behavior in both of the structures was primarily focused on off-site procurement of local lithic sources. Lodge CC indicates a nearly complete reduction sequence of the materials to include nearly finished and thinned bifacial cutting tools of local material. Both these materials and large complete end scrapers were left in the wall of Lodge CC which suggests they did not become a part of a mobile toolkit. Furthermore, lacking a refit analysis of this structure it seems there were no manufactured tools of local materials that left the domestic structure. There is some tool maintenance associated with obsidian but there is also a point preform and two cores suggesting the maintained tools never left the structure and were also

placed in the wall. Although less formal Lodge MA2 also indicates a similar pattern of use with large local tools used to make expedient tools and then left in the walls of the domestic structure.

This pattern is consistent with what Barton and Riel-Savatore (2014:8) using the work of Kuhn (1992; 1995) define as place provisioning. “Provisioning places refers to stockpiling lithic material at locales for future use. While there is a limit to the amount of stone an individual on foot can carry - especially if s/he also must carry other objects of technological and/or symbolic value, food and/or water, infants, etc. there is no such limit to the amount of lithic material that can be stockpiled at a place” (Barton and Riel-Salvatore 2014:8). It is a pattern of lithic provisioning associated with both stable and predictable subsistence resources (Clarkson 2008). While this is not proof of a broad-scale land-use pattern like that suggest by Shimkin (1947) for the Eastern Shoshone, it does suggest the possibility that these residential sites were associated with a broad and stable land-use pattern of Firehole Phase age that incorporated both alpine and basin resources.

Unfortunately the specific duration and seasonal scheduling of both of these residential sites is still open for interpretation. The similarity in lithic procurement as well as the investment in architecture still may represent more substantial occupations associated with both a stable and broadening mobility/subsistence that included alpine and basin resources (Bliege Bird and Bird 2005). The inclusion of historical documentation for the Eastern Shoshone provides a testable schedule for this use (Shimkin 1947). However, lacking seasonally specific data the current analysis focused on the lithic procurement and associated behavior interpreted from lithic assemblages excavated from a similar domestic feature in the Wyoming Basin at the SBL and from the alpine HRV site.

LARGE RESEARCH TRENDS AND BROADER CONTRIBUTIONS

Most alpine research assumes a level of marginality because spatially oriented models place a significant cost on the caloric expenditure of higher elevations (Morgan et al 2012). Under these models the cost of first getting to and then operating in alpine environments is expensive and difficult to justify if daily caloric needs are not also continually met (Aldenderfer 2006; Bettinger 1991; Morgan et al. 2012; Thomas 2011). Microeconomic approaches like those commonly employed to explain high altitude occupations are but one theoretical avenue with which to frame the use of high altitude environments.

Bender and Wright (1988) proposed a different view of the high altitude Rocky Mountain occupations. They suggest a broad-spectrum model for the mountains wherein seasonal use offered unique and diverse plant resources not available in lower elevations. The model assumes that residential mobility produced alpine base camps and that associated task-specific camps radiated out from these base camps. They prefer this model over task-specific hunting and climatic driven models for the explanation of alpine occupations. If plant-based it may be appropriate to view large residential sites in the alpine as indicators of critical resource patches (Adams 2010; Spangler 2000:25). However the weakness of the broad-spectrum model and critical resource patch is that they do not explain the differential diachronic use of high altitude environments that clearly ebb and flow between residential and logistical in a yet undefined pattern. The broad-spectrum model also does not take into account post-depositional or multiple occupation events across a landscape. A similar but more detailed approach is suggested by Walsh et al. (2006) who argued both resources and shared ideals of high altitude environment by prehistoric populations better explain diachronic patterns of alpine land use. This idea is

reinforced by the lack of paleoenvironmental data that alone does not explain the abandonment or florescence of occupations specific to the French Alps (Walsh et al. 2006).

The mountain and peripheral basin in the Wind River Range and the Shirley Basin indicate more permanent residential occupations (Smith 2003). Preliminary radiocarbon dates place these occupations inside a more mesic environment and this is at least a partial factor in escalation of their use (Eckerle 1997). Recent research on mountain residential occupations suggests the climatic conditions alone provide only a partial explanation of village formation and the specifics of both upland and lowland population densities must also be reconstructed (Morgan et al. 2012). When both climate and population densities are addressed the assumption is high population densities and ameliorating climate pushed human groups to mountain environments and then to the fringes of populated basins. This interpretation has not yet incorporated chronometric data considered the seasonal usage of both ecosystems. The research presented in this dissertation does not deny the importance of climatic and demographic variables but these studies indicate a fairly fluid use of the alpine and Wyoming Basin especially by the Late Prehistoric Firehole Phase.

Future Direction

The technology described as Shoshonean belonging to the Firehole Phase have at least three defining subsistence-economic strategies recorded in different environments. Alpine use – focused on mountain resources, including bighorn sheep, marmots, and possibly whitebark pine nuts; Green River basin – focused on smaller game, pronghorn, and small seed processing; eastern river basins – focused on large game like bison with more limited plant processing. The record in these regions share a technological suite which is assumed to correspond to the

seasonal usage of diverse environments by a related group. This may violate the idea that cultural systems adapt to similar variables in a similar fashion because of a large distribution in diverse settings. The recent focus on how technological information is maintained and passed on in living groups offers insight here.

The transmission of cultural information from individual to individual might suffer from disagreement on the unit of analysis but clearly information is passed from one human to another (Boyd and Richerson 2005). The process of cultural transmission is a mix of experimentation and social learning; as (Eerkens and Lipo 2007:242) state “humans can continually acquire, modify, and pass on modified information”. Information passed in cultural transmission does not operate on the same scale as genetic transmission, which is strictly vertical. Information can come from peers (horizontal), other elders (oblique) or from parents (vertical) and there is no limit on the amount of information passed or direction it is passed (Eerkens and Lipo 2007). Transmission can have several biases, the first of which is indirect bias defined by individuals who choose to acquire a trait from a social model the single trait is embedded within. The classic example is described as new hunters who copy successful hunter gear and possibly techniques resulting in similar technology (Bettinger and Eerkens 1999). This is similar to what Bentley and Shennan (2003:460) call “keeping up with the Joneses” or a prestige bias that may result in a runaway process (i.e. keeping up). This differs from guided variation (and is hard to separate from Bentley and Shennan’s (2003:460) definition of unbiased transmission) when “individuals acquire new behaviors by directly copying other social models and subsequently modifying these behaviors to suit their own needs by individual trial-and-error experiment” (Eerkens and Bettinger 1999:236). The results of guided variation are essentially unique to individuals whereas the results of indirect bias differ due to social learners closely copying the

perceived success of the trait (unbiased indicator traits) (Bettinger 1991:196). Additional biased transmission can come in the forms of content, and frequency bias, which are those traits learned through frequent encounters (Boyd and Richerson 2005:69). What this overview suggests is learning is not always a simple one-to-one between parents and offspring and specific criteria have to exist for cultural traits to not change.

Research into the maintenance of cultural traits falls under macroevolutionary analyses focused on long-term cultural evolution processes. This approach has defined the organizational logic of a cultural group as a Resource Management Strategy (RMS) which “integrates human subsistence and settlement behavior” (Prentiss and Chatters 2003; Chatters and Prentiss 2005; Prentiss and Lenert 2009:236). It is both heritable and transmittable (RMS) because it is information that is passed on from generation to generation (Prentiss and Lenert 2009). This includes economic strategies that maintain group fitness and on some levels define technological traits. The applicability of the approach for future research is the focus on the maintenance of organizational logic (which defines material items) that may remain static while spreading throughout large geographical areas. It offers a framework for looking at local variation while remaining focused on the similarities and differences in higher organizational logic (RMS). This offers a methodological and theoretical construct for approaching both cultural change and stability especially in a large spatial-context. This approach was at the center of the idea that two cultural entities came into contact and one out-competed the other to spread across the Great Basin (Bettinger and Baumhauf 1982).

The traveler/processor model for the Numic spread suggested that two adaptive strategies existed in the Great Basin. It was argued that one adaptive strategy was focused on low-cost/high-yield (Traveller) resources and was outcompeted by another strategy focused on

high-cost/low-yield (Processor) resources (Bettinger and Baumhauf 1982). In a situation where environment (climate?), technology, and group organization are held constant and population is high relative to resources it was argued that high-cost competitive strategies would outcompete low-cost ones (Bettinger and Baumhoff 1982). Under this logic then settlement systems between the two strategies would approximate a forager/collector-like dichotomy (cf. Chatter 1987, Binford 1980), and represent two systems at peak adaptation. Defined here as the point when a variety of systems subsumed under an adaptive strategy (RMS) align to meet “locally optimal situations” (Bettinger and Baumhoff 1982:489). These conditions produce adaptive specialties that are slow to change because of the presumed learning costs associated with abandoning one strategy for another. Overtime this produces a lag effect that enables one group to outcompete the other in a context of competing adaptive strategies. Adaptive strategies (RMS) are temporally and environmentally contingent, represent adaptive peaks that define the organizational logic of groups, and can, at times, lock a group into a maladaptive strategy that may lead to its extinction.

At the 2013 Rocky Mountain Anthropology Conference in Taos, New Mexico, Robert Bettinger, a discussant in a symposium for “current research” accused archaeologist of the region of being atheoretical and challenged them to ‘not shy away from theory’. It is true. Late prehistoric studies in the Middle Rocky Mountain region are behind the discipline of archaeology as a whole. We have relied on ethnic interpretations of artifacts to reaffirm historical accounts often using the later to create the former (Adams 2010; O’Brien 2013). In many respects the theoretical plurality I have outlined here is a direct outgrowth of the lack of theory seen in the region but because of this can focus on strengths of several paradigms simultaneously.

This research accepts the early work of culture-history archaeologist while rejecting key components. The prime mechanism for cultural change was weak as diffusion and migration are insufficient to explain culture change. However the materials they defined and distribution of those materials is what most current research in archaeology is based. There is also a strong argument to be made for the functional role of culture but the systemic characteristics are less evident to me. This research acknowledges that environment and ecological variables must, on some level, condition human behavior. Existence in the material world is proof of their impact (Kelly 2004, Trigger 2006). It further acknowledges that ideology can drive cultural change and influence the patterning we see as archaeologists. However, our discipline is better at sorting out the long-term behavioral trends associated with ecological and environmental trends; this is the nature of our coarse-grained data and the macroevolutionary paradigm that Middle Rocky Mountain research should progress towards.

CONCLUSION

Explanations of high altitude residential occupations are often exclusionary in focus. The goal of the articles in this dissertation was primarily to address alpine exclusive analyses. In doing so other issues were raised also about the limits of ethnicity in explaining the materials associated with mountain and basin occupation. The similarities recently found in domestic sites in diverse ecosystems was the center of this research. The Shirley Basin Lodge site representing the low elevation residential sites and the High Rise Village site representing alpine residential sites. If each residential sites was part of a seasonal transhumant system it is still very much expected that each site should reflect local seasonal resource use with overlapping dates of occupation. The data collected as part of this dissertation research did explicitly address this

issue. However the lithic materials found and analyzed do suggest the lithics at the High Rise Village site indicate a clear case of place provisioning. This indicates a degree of planning that suggests seasonality. However future, alternative explanations should explicitly explore these locations as part of intergroup gatherings as suggested in ethnohistorical documents. This work sought to advance the Late Prehistoric studies of Middle Rocky Mountain region by testing similarities seen in the archaeological record from two residential sites. Future studies need to include adjacent areas like the well-studied Great Basin, while acknowledging the local variation that exists at each location. Once this local variation is understood it then may be possible to better address some of the larger questions associated with each site like ethnic or linguistic migrations.

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